

SUPPLEMENT.

The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

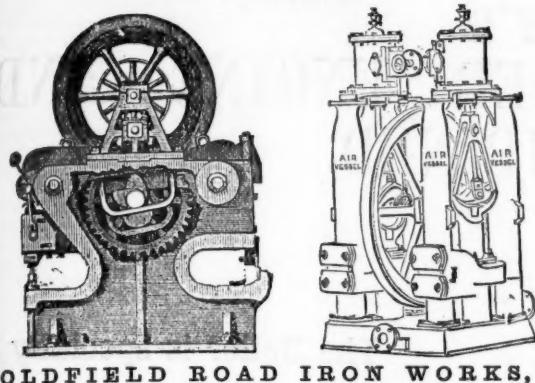
[The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

No. 2059.—VOL. XLV

LONDON, SATURDAY, FEBRUARY 6, 1875.

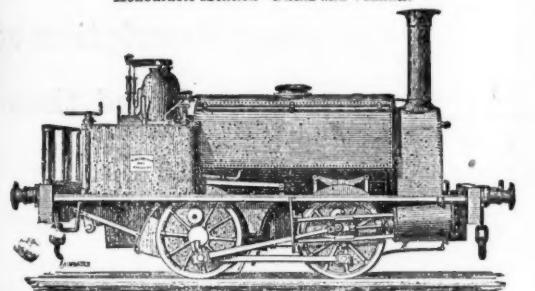
PRICE (WITH THE JOURNAL) SIXPENCE.
PER ANNUM, BY POST, £1 4s.

JOHN CAMERON'S
SPECIALITIES ARE ALL SIZES OF
Steam Pumps, Shipbuilders' Tools,
BAR SHEARS.
ESTABLISHED 1852.



OLDFIELD ROAD IRON WORKS,
SALFORD, MANCHESTER.

HENRY HUGHES AND CO.,
FALCON WORKS,
LOUGHBOOROUGH.
Honourable Mention—PARIS and VIENNA.



LOCOMOTIVE TANK ENGINES.

For COLLIERIES, MINERAL, and CONTRACTORS' RAILWAYS, of the best materials and workmanship, always in progress, from 6 to 14 in. cylinders, four or six wheels coupled, for cash, hire, or deferred payments.

BICKFORD'S PATENT
SAFETY FUSE,
FOR CONVEYING
FIRE TO THE
CHARGE IN
BLASTING ROCKS, &c.
Obtained the PRIZE MEDALS at the "ROYAL EXHIBITION" of 1861; at the "INTERNATIONAL EXHIBITION" of 1862, in London; at the "IMPERIAL EXPOSITION," held in Paris, in 1865; at the "INTERNATIONAL EXHIBITION," in Dublin, 1865; at the "UNIVERSAL EXHIBITION," in Paris, 1867; at the "GREAT INDUSTRIAL EXHIBITION," at Altoma, in 1869; and at the "UNIVERSAL EXHIBITION," Vienna, in 1873.

BICKFORD, SMITH, AND CO.,
of TUCKINGMILL, CORNWALL; ADELPHI
BANK CHAMBERS, SOUTH JOHN-STREET, LIVERPOOL;
and 85, GRACECHURCH-STREET, LONDON,
E.C., MANUFACTURERS AND ORIGINAL
PATENTEES OF SAFETY-FUSE, having been informed that the name of their firm has been attached to fuse not of their manufacture, beg to call the attention of the trade and public to the following announcement:

EVERY COIL OF FUSE MANUFACTURED by them has TWO SEPARATE THREADS PASSING THROUGH THE COLUMN OF GUNPOWDER, and BICKFORD, SMITH, AND CO. CLAIM TWO SUCH SEPARATE THREADS AS THEIR TRADE MARK.

For Excellence
and Practical Success
of Engines



Represented by
Model exhibited by
this Firm.

HARVEY AND CO.,
ENGINEERS AND GENERAL MERCHANTS,
HAYLE, CORNWALL,
HAYLE FOUNDRY WHARF, NINE ELMS, LONDON,
AND 120, GRESHAM HOUSE, E.C.

MANUFACTURERS OF
PUMPING and OTHER LAND ENGINES and MARINE STEAM ENGINES
the largest kind in use, SUGAR MACHINERY, MILLWORK, MINING
MACHINERY, and MACHINERY IN GENERAL.
SHIPBUILDERS IN WOOD AND IRON.

SECONDHAND MINING MACHINERY FOR SALE,
IN FIRST-RATE CONDITION, AT MODERATE PRICES.
PUMPING ENGINES; WINDING ENGINES; STAMPING ENGINES;
STEAM CAPSTANS; and CRUSHERS of various sizes. BOILERS, FIT
WORK of all descriptions, and all kinds of MATERIALS required for
MINING PURPOSES.

THE PATENT PNEUMATIC STAMPS
May be SEEN AT WORK at HAYLE FOUNDRY WHARF, NINE ELMS,
by previous application at either of the above addresses.

BENNETT'S SAFETY FUSE WORKS,
ROSKEAR, CAMBORNE, CORNWALL.

BLASTING FUSE FOR MINING AND ENGINEERING
PURPOSES.

Suitable for wet or dry ground, and effective in tropical or Polar Climates.

W. BENNETT, having had many years experience as chief engineer with
Messrs. Bickford, Smith, and Co., is now enabled to offer Fuse of every variety of
his own manufacture, of best quality, and at moderate prices.
Price Lists and Sample Cards may be had on application at the above address.
LONDON OFFICE—H. HUGHES, Esq., 85, GRACECHURCH STREET.



PARIS. ORDER OF THE CROWN OF PRUSSIA. FALMOUTH.

McKEAN'S ROCK DRILL,
ADAPTED TO EVERY CLASS OF ROCK BORING.

ONE HUNDRED MACHINES
FURNISHED FOR THE

ST. GOTTHARD TUNNEL OF THE ALPS.

IN USE AT—
SEVERN TUNNEL of GT. WESTERN RAILWAY, near BRISTOL.
CWM BRAIN TUNNEL of the PATENT NUT & BOLT CO. WALES.
BARROW WATER-WORKS TUNNEL BARROW.
ST. JOHN DEL REY MINES BRAZIL.
RIO TINTO MINES SPAIN.
BAMBLE MINES NORWAY.
THE MINES of SIR GEORGE DENYS, BART. RICHMOND, YORK.
MINES of MONGESS HARBOUR PORTUGAL.
DALBEATTIE GRANITE QUARRY WORKS SCOTLAND.
BUXTON LIME QUARRY WORKS BUXTON.
QUARRIES AT BRESLAU BOHEMIA.
FIUME HARBOUR WORKS BELGIUM.
ALEXANDRIA HARBOUR WORKS AUSTRIA.
DEEPENING RIVER KENT EGYPHT.
HIOGO JAPAN.
AT SEVERAL PLACES INDIA.
AND AT VARIOUS MINING AND QUARRY WORKS, AND
CONTRACTORS' WORK OF VARIOUS KINDS.

SPECIAL NOTICE.

In consequence of the varied applications of our now celebrated ROCK DRILLS, and the numerous enquiries for a Light and Cheap Machine, by which the merits of the principle can be practically tested, we have just introduced a Drill specially adapted for experimental purposes, and are prepared to supply this Machine at the very low price of

£35.

We are likewise ready to supply Drills of other qualities and sizes (all being the same in principle), with the latest modifications of our system, adapting them to all the requirements of portability for Mining and other various purposes of Rock Boring.

ILLUSTRATED CATALOGUES AND PRICE LISTS
ON APPLICATION.

ST. GOTTHARD TUNNEL.

Extract from Official Report of M. Favre, the contractor.

"By the end of this (June, 1874) month a sufficient number of the improved McLean Boring Machines, at present only partially employed will be at disposal, and they will be exclusively used in the works of the Tunnel."

ENTREPRISE GENERALE DE CHEMINS DE FER ET DE TRAVAUX PUBLICS, PARIS.

"We hereby certify that we are employing at our works at the port of Flume, Austria, several of McLean and Co.'s Rock Drills, and that we are highly pleased with the results obtained."

Paris, 24th April,
L'Administrateur Délégué.

(Signed) A. CHAMPOUILLOON.
With each of four No. 3 Rock Drills, furnished successively to the "Enterprise Générale," for the work above mentioned, we have furnished the tools for boring to 30 ft. in depth.—McK. and Co.

PORTABLE BOILERS, AIR COMPRESSORS, BORING STEEL,
IRON, AND FLEXIBLE TUBING OF SUPERIOR
QUALITIES AND SPECIAL ADAPTATIONS.

McKEAN AND CO.,
ENGINEERS.

OFFICES.
31, LOMBARD STREET, LONDON, E.C.; and
5, RUE SCRIBE, PARIS.

MANUFACTURED FOR McKEAN AND CO. BY
MESSRS. P. AND W. MACLELLAN, "CLUTHA IRONWORKS,"
GLASGOW.

CONDENSATION OF SMOKE & GASES.

HESLOP, WILSON, AND BUDDEN,
NEWCASTLE-UPON-TYNE.

This PATENT APPARATUS is EXCEEDINGLY SIMPLE and INEXPENSIVE IN CONSTRUCTION, and is so arranged as may seem best for assist the substances to be operated upon.

AFFORDS TO MANUFACTURERS AND OTHERS PERFECT SAFETY UNDER THE SMOKE AND GASES ACTS.

More effective than condensing towers.

Large chimneys can be done away with. Succeeds thoroughly in condensing ammonia.

UTILISES ALL EMISSIONS.

OF GREAT VALUE IN SMELTING WORKS.

The Machine can be seen at work at—

JOHNSON AND HOBBS,
NO. 11, CROSS STREET, MANCHESTER,
Of whom also all particulars can be had.

HIGGINSON'S PATENT GOVERNORS
FOR
MARINE & LAND ENGINES

ARE THE
CHEAPEST, SIMPLEST, MOST EASILY APPLIED,
MOST SENSITIVE, MOST POWERFUL, OCCUPY LEAST SPACE,
ARE MOST EFFECTIVE IN ALL EMERGENCIES

At sea or on shore, and are the
ONLY ONES WHICH GIVE THE FULL PRESSURE
In the boiler to the piston at the top and bottom of the stroke automatically cutting off the steam according to the requirements of the work, thereby effecting an
IMPORTANT SAVING OF FUEL,

And, in case of a break-down,
INSTANTLY SHUT THE STEAM COMPLETELY OFF,
Thus preventing further damage.

For Prices, Licenses to Manufacture, and other particulars, apply to—

ANDREW LEIGHTON & CO.,
16, SOUTH CASTLE STREET, LIVERPOOL

COPPEE COKE OVENS.

Complete information respecting these
PATENT COKE OVENS
may be obtained from the

COPPEE COKE COMPANY
(LIMITED),
94, GRACECHURCH STREET, LONDON, E.C.

ASHWORTH'S IMPROVED
STEAM RAM PUMPS.

AWARDED
First Prize
MEDALS

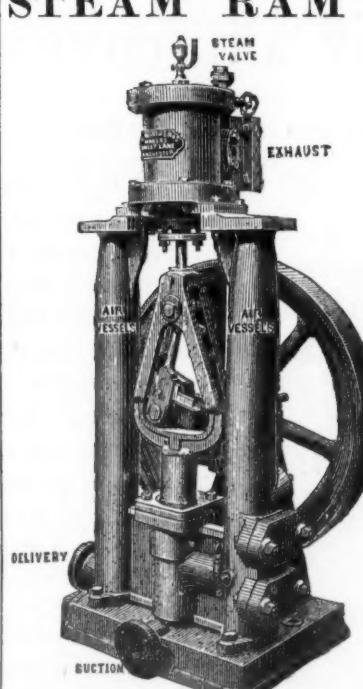
AT
MIDDLETON,
WORSLEY,
OLDHAM,
AND
MANCHESTER AND
LIVERPOOL SHOWS,

September, 1874,
For Neatness,
Simplicity,
and Efficiency.

Useful to Mill-owners,
Colliery Proprietors,
Chemical Works,
Paper Works, &c.

Single & Double
RAM PUMPS
of all sizes.

Full particulars on
application.
ASHLEY LANE, MANCHESTER!





THE "KAINOTOMON" ROCK DRILL,

The SIMPLEST, CHEAPEST, and BEST Machine in the World for SINKING, MINING, and QUARRYING,

Is extensively used at the principal Mines, Collieries, and Quarries of Great Britain, and the Continent of Europe.

"To this invention, which appears to possess several advantages over the machines previously exhibited at Falmouth, the Judges are unanimous in awarding a first-class silver medal" (the highest award).—Report of the Judges at the Royal Cornwall Polytechnic Society's Exhibition, 1873.

"The boring machine works splendidly."—W. TORRANCE: Mid-Calder.

"For simplicity, compactness, and performance of work, your drill excels all others."—JOHN MAIN: Crossfield Ironworks.

"Under the most difficult circumstances, they give every satisfaction."—G. GREY: Montreal Iron Mines, Cumberland.

"The simplest and best boring machine."—Capt. WASLEY's letter to the Mining Journal, Oct. 18, 1873.

"It gives every satisfaction."—W. E. WALKER: Lord Leconfield's Iron Mines.

"The rock-drill I bought of you seven months ago has given me entire satisfaction, and I am convinced that the 'Kainotomon' is the best rock-drill in the market."—P. MCGINNIS: Strabane.

"I am quite satisfied with the working of it. For sinking pits it is a first-rate invention; I can do as much boring with it myself as six men can do by hand."—S. JENKINS: Artillery.



The advantages over other Rock-boring Machines claimed for the "Kainotomon" are—

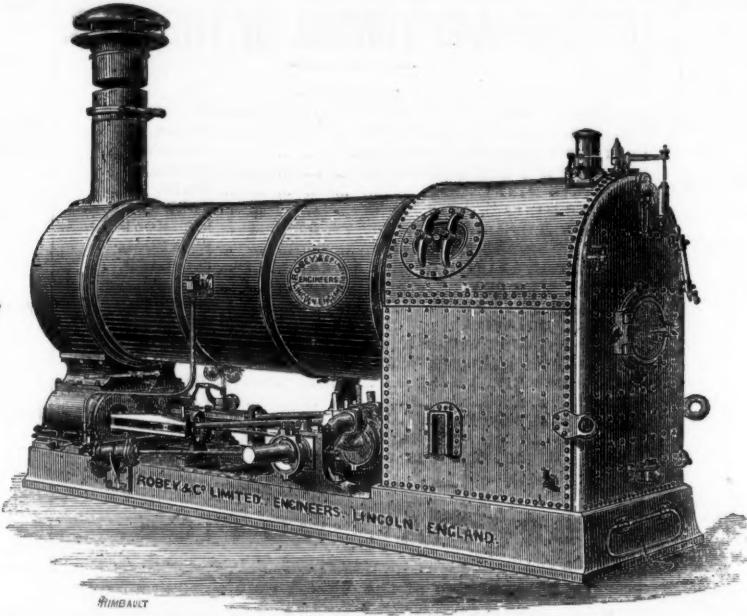
- 1.—It is much shorter.
- 2.—It is much lighter, and more readily removed from place to place.
- 3.—It requires the turning of ONLY ONE, instead of a number, of set screws, to fix it in position at any angle.
- 4.—It may be fed 3 inches out of stroke, without stopping the working of the drill, an invaluable advantage.
- 5.—It is not liable to derangement.
- 6.—It has not one-third the number of parts in its construction.
- 7.—All stuffing-boxes and parts requiring adjustment are dispensed with.
- 8.—It is so simple in its construction that any ordinary labourer or miner can drive it, simply having to turn on the motive power and feed the drill.
- 9.—The rotation is compulsory, and regular.
- 10.—40 lbs. pressure only is required to work it.
- 11.—A saving of over 50 per cent. in iron and flexible piping.

"THE ECONOMIC" COAL-CUTTERS, AIR COMPRESSORS, BOILERS, &c.

THOS. A. WARRINGTON, 30, KING STREET, CHEAPSIDE, LONDON, E.C.

ROBEY AND COMPANY'S NEW DESIGN OF HORIZONTAL FIXED ENGINE AND LOCOMOTIVE BOILER COMBINED.

The Cost of all expensive
Brick Buildings and Chimney
is saved by this Engine.



The Boiler is specially
arranged to burn saw-dust
and refuse wood,
and every description of
inferior fuel, and thus
economise Coal.

Some of the advantages of the New Patent Engine are as follows:

Small first cost.

Saving of time and expense in erecting.

Ease, safety, and economy in working.

Great saving in fuel.

This New Patent Engine is free from all the objections that can be urged against using the old style of Semi-Portable Engine for permanent work, because it possesses the rigidity and durability of the Horizontal Engine, and at the same time retains the advantages of the Semi-Portable, in saving time and expense in fixing.

This New Engine is admirably adapted for driving Flour Mills, Saw Mills, Brick Machines, Pumps, Ore Crushers, Stone Breakers, and all descriptions of Fixed Machinery.

ENGINES UP TO 200 EFFECTIVE HORSE-POWER ALWAYS IN PROGRESS.

For full particulars, and prices, apply to—

ROBEY AND COMPANY, LIMITED, ENGINEERS, LINCOLN, ENGLAND.
LONDON OFFICES.—98, CANNON STREET.

IMPORTANT TO COLLIERY OWNERS.

PATENT STEAM PUMPS,

Awarded the only
Prize Medal for
Vertical Steam Pumps,
at the Pomona Show,
Manchester, Nov., 1874.

FOR FORCING
WATER OUT OF MINES,
FEEDING BOILERS, AND
ALL PUMPING PURPOSES.
Prices and testimonials on application to

HULME & LUND,
PATENTEES,
WILBURN IRONWORKS,
Wilburn-street, Regent-road,
SALFORD, MANCHESTER.



**THOMAS WARDEN & SON,
IRON, STEEL, AND GENERAL MERCHANTS,**
LIONEL STREET, BIRMINGHAM,

Manufacturers of Anvils, Vices, Hammers, Bellows, Tue Irons, Hydraulic and Screw Jacks, Crabs, Cranes, Spades, Shovels, Picks, Arms and Boxes, Axles, Springs, Hurdles and Fencing, Screw Bolts, Washers, Hames, Chains, Files, Nails, &c., &c.
SECOND-HAND RAILS, AND EVERY DESCRIPTION OF RAILWAY, COLLIERY, AND CONTRACTORS PLANT
ALWAYS ON HAND.

S. C. HEMMING & CO., 25, Moorgate-street, London,



VIENNA EXHIBITION FOR GALVANIZED IRON
BUILDING

Manufacturers of Iron

Iron Buildings of every description sent to all parts of the World, especially constructed for Hospitals.

Roofing & Galvanised Iron.

Original Correspondence.

EXAMINATION OF THE "CONSOLIDATED VIRGINIA" AND "CALIFORNIA" SILVER MINES BY THE CALIFORNIA MINING BUREAU.

SIR.—In answer to many enquiries published lately by the *Mining Journal*, asking me information in regard to the present standing of the London and Pacific Coast Land and Mining Bureau, I beg to state that it has been reorganized and incorporated under the laws of California, and that some of the best men of that State compose the board of directors. The reports made since the last four years upon certain mines which were considered by the undersigned either as worthless, or having been placed upon the London financial market at the most unreasonable prices, so as to render payment of dividends an impossibility, have dissatisfied the originators of these schemes on this side, and have induced them to unite in a body of calumniators against the Mining Bureau and its President, in order to destroy an institution which is an obstacle to their unscrupulous designs. Their systematic opposition has been a source of strength for us, while it has brought to light the many services rendered to the English capitalists by having prevented investment in mining enterprises which have been since demonstrated as being of the most fraudulent character. It should not be forgotten that the great Diamond Swindle was exposed from the beginning by the undersigned, and that without his timely admonitions through the columns of the *Times*, the *Mining Journal*, and the *Journal des Débats*, in Paris, the financial markets of Europe would have been overflowed with the stock of several of those fraudulent diamond companies. The English public is the best judge of my untiring exertions since four years ago for the protection of their interests. Unless full confidence be placed in my reports I will always be exposed to be accused of having been bribed in case they are favourable, and of having been guilty of black mail in case they are not. Such is the dangerous position of the Bureau. But I will affirm upon my conscience that my aim has been honest, and I challenge anybody to prove by facts, except he be a perjuror or a man who has suffered from unfavourable reports, that I have ever received any money consideration which was not honestly and openly earned in consideration of my services in examining and reporting upon mining properties.

In regard to the few favourable reports which I have made upon properties now in the hands of English capitalists, I should say that I have recommended these properties, but my responsibility cannot extend to the exorbitant prices which have been paid for them, let unsatisfied shareholders communicate with me, and I will gladly furnish them with any explanation they may require.

Finally, *noblesse oblige*, and I will, therefore, firmly stand as before in the line of duty, by keeping the Mining Bureau as the necessary protector of both the legitimate mining interests of this Coast and the English capitalists seeking a safe and profitable investment in the soundest enterprises.

To those who may still entertain any doubt in regard to the standing of the Bureau I submit the following, which speaks for itself:—At a meeting of the board of directors of the London and Pacific Coast Land and Mining Bureau, held in the City of Sacramento, on Jan. 7, President Col. J. Berton presiding; present—J. Berton, T. B. McFarland, United States Land Registrar; Gen. L. H. Foote, Adjutant-General of California; Edward Cadwalader, land and insurance agent; and A. Leonard, secretary, a full board, the following was unanimously adopted:

"Whereas foreign capitalists and the principal interested parties in the undermentioned mines, located in Nevada, have expressed a desire that the European press and public be enlightened by the Mining Bureau upon the real merits of these properties, therefore be it resolved that Col. Berton, President of the Bureau, be authorized to examine in its behalf the mines of Consolidated Virginia and California Mining Companies, and submit his report thereon.

By order of the board, A. LEONARD, Secretary."

In pursuance of the above authority I have, in company of Mr. John W. Mackay, the fortunate holder of 40,000 shares in the above companies, and the original principal owner of the two mines, thoroughly examined the Consolidated Virginia and California; which, judging by the high prices reached by their stock on the San Francisco Exchange, may be considered as the greatest mines in the world. As soon as my reports have been submitted to and approved by the board of directors of the Bureau they will be forwarded to the *Mining Journal* and other leading papers in London and Paris.

J. BERTON,
President of the London and Pacific Coast Land and Mining Bureau.
Virginia City, Nevada, Jan. 12.

ROCK DRILLS.

SIR.—There has been a good deal of correspondence lately in the *Mining Journal* about these machines, yet I would ask for space to offer a few remarks respecting the application of the drills to colliery shafts. There are very many coal estates being opened out at the present time, and in the majority of these the work of sinking is done by hand; and where the strata are composed of harder substances than mere clay the rate of progress can readily be imagined as slow in the extreme. Not only are the hopes of the proprietors falsified to great extent, but the expense consequent on the tedious method of sinking is enormous.

Several rock drills have been introduced of late years, and with varying results. Some are worked by hand, and others by both steam and compressed air. The latter method is the more convenient when the work is at a great depth, as steam through condensing is found to lose much of its force on its passage from the surface to the bottom. The finest rock-drill now before the public can be worked by compressed air at any depth at the rate of about 1000 blows per minute, and besides cutting through several yards of the hardest rock per day with the least appreciable wear and tear of the steel borers, serves as a most valuable ventilating agent, for the air being compressed to the extent of five atmospheres in one expands on passing through the drill into its ordinary volume. An impartial observer cannot help feeling the keenest pity for the prejudice and astonishing conservatism of many capitalists who, by their blindness to their own interests, are wasting thousands in persisting to keep to the antiquated method of sinking by hand. There are some magnificent properties, especially in South Wales, now being developed, and if the owners of these would only give the McKean drill a fair and just trial they would soon find that the results gained had far surpassed their most sanguine expectations. But, alas! no powers will move Welshmen. — A CONSTANT READER.

ROCK DRILLING MACHINERY—THE CHANNEL TUNNEL.

SIR.—There being now reasonable probability of the Channel Tunnel being commenced, it may be well worth while to consider what kind of machinery is likely to prove most economical in making it. The various forms of rock drills used in the Mont Cenis, Hoosac, Sutro, and other great tunnels would be totally inapplicable to the purpose, for the same reason that it would not be economic to use a steam hammer to crack eggs, neither the Diamond drill, the Burleigh, the McKean, or any other drills of the class adapted for dealing with hard rocks having been found economic when anything softer than sound slate has to be passed through; the "mechanical cheese-cutter," however, appears to be going to the other extreme. The model works very well, no doubt, but it will be found a different matter altogether if we attempt to move 100,000,000 cubic feet of material by the same means. The disadvantage of all machines in which pressure alone is relied upon—and both the Diamond drill and the "mechanical cheese-cutter" would come within this category—is that irregularity of hardness in the rock has a most prejudicial effect upon the progress of the drivage. The admixture of chalk with boulders is a most uncomfortable one for these machines, as the boulders are not fixed firmly enough to let the machine cut through them, as the Diamond drill could do, whilst they are too tight to be knocked out by either the Diamond drill or the cheese-cutter, so that the chalk is protected until the boulder is literally shaken out of place, and in the latter case it would probably fall into the machine, and injure it.

It seems to me that the only form of machine likely to give good

results is the coal-cutter, especially the pick machines, and if these were used the debris could be much more easily removed, and as the extent of ground to be removed by mere abrasion would be reduced to an infinitesimal proportion, the inconvenience which would arise from obstructions in the shape of boulders would be much reduced. With pick machines all that would be necessary is to make a vertical cut on each side of the intended advance tunnel, and one under-cut, when the mass could be quickly blown down. Assuming the advance heading to be 8 ft. by 8 ft., the progress ought to be very rapid. Any of the best pick machines could under-cut in chalk to the depth of 4 ft. in about 30 minutes for the two 8 ft. vertical and the one 8 ft. under-cut, and as a row of holes could be put in along the top whilst the cutters were at work, so that the charge might be fired in one hour after the machines were got to work; it would take half an hour to clear the debris, and half an hour to get all ready for the next length of drivage, which would give 48 ft. progress per 24 hours; this could be made at each end, so that the daily progress would be 16 fms. per day, or one mile would be got forward in 55 days. Allowing for Sundays, stoppages, and hindrances, it might safely be calculated that 275 days' work would be done in the 365 days. The masonry work and rail laying, including the enlargement of the tunnel to full size, could readily be kept up to the advancement (that is to say, at the rate of 5 miles per annum), so that the whole tunnel might be ready for opening for traffic in 4½ years. Many would be prepared to undertake the drivage at 2d. per cubic fathom, and as there are 3,000,000 cubic fathoms of material, not calculating the approaches, the cost ought not to exceed 6,000,000/. This would leave 4,000,000/ for the approaches and for the fixed charges, and still the whole would come within the 10,000,000/. mentioned in last week's *Journal*, so that only 10,000/ per week profit would be required to give the shareholders 5 per cent. upon their investment. Surely this might be obtained. — ENGINEER.

Feb. 2.

SUBMARINE RAILWAY BETWEEN ENGLAND AND FRANCE.

SIR.—It is now nearly 30 years since a description of my invention for connecting England and France by means of a submarine railway was published in the *Mining Journal*. The most eminent of the eminent engineers of the day wrote on it the word "impossible," and jubilant with the idea that his veto was sufficient to prevent a scheme which had not originated with himself from being adopted so long as he lived, he, with equally disinterested motives, went to Egypt, and walked over the spot on which a company had the unpardonable presumption to propose cutting a ship canal without having appointed him engineer-in-chief. It was well that his bones rested in Westminster Abbey before the completion of that stupendous work. His stereotyped "impossible" frightened English capitalists, but the works proceeded rapidly under the auspices of the French Government. During several years following 1844 I matured the invention, publishing a great number of papers on the details, which, if collected, would form a volume, but I was met everywhere with the laconic sentence, "Mr. Stephenson has condemned your scheme as impossible." "True," I replied, "and one fool makes many; but I can wait."

If, however, only a small number of persons believed that France and England would be united by means of an iron road, there were several individuals on both sides of the Channel who took upon themselves subsequently to publish plans as their own invention which differed from mine only in some unimportant details. These, however, were outdone in impudence by a person named Chalmers, who a dozen years ago published, in the form of a pamphlet, some details on the Channel railway, nearly the whole of which, with the exception of the ventilator in mid-Channel, had been copied word for word from my published papers, and he evidently imagined that he could easily appropriate my invention if he could succeed in ridiculing my style of writing. In one of my papers I had alluded to the lowering of each section of the proposed tube on the bed of the sea; by a typographical error the term lowering was rendered throwing, and, chuckling over the word, Mr. Chalmers thought that, in the eyes of the public, that would justify his putting my invention in his pocket. The jackal thought that he could pass for the eagle by stealing one of his feathers.

This invention was first published in March, 1844, and then it was only after it had existed in my brain for several years. Attempts were subsequently made by other parties to claim a priority of invention; but no periodical or publication of any kind printed before that date was ever produced containing the words "submarine railway," or iron railway tunnels "crossing rivers and narrow seas." I, therefore, conclude that I am justified in claiming the idea as mine. I may add that from the time the thought flashed across my brain it has been an ever-present idea. I have never lost confidence in its ultimate realisation.

I foresaw from the first that, owing to the novelty of the idea and the stupendous character of the scheme, many years might elapse before it would be seriously entertained, and I was not mistaken. And then a native of a small islet in the English Channel, unknown as an eminent engineer, and with no claim except his inventions, might hide his diminished head, but the climax of my shortcomings was exhibited in an almost tragical occurrence. When, in 1845, my invention was published in England, I was told that mine was only a modification of George Stephenson's plan for crossing the Menai Straits. I had then no alternative left but to explain that in 1844 a lengthy description of my plans, with numerous drawings, had been confidentially placed in the hands of the eminent engineer, through the medium of Sir Joshua Walmsley, subsequently member for Leicester. The papers and drawings were never returned. The eminent engineer had a whole army of friends, who decided that rightly or wrongly—no matter if it should be the latter—he must be upheld. Under their protection he proclaimed to the world that six or seven years ago he had proposed to construct an iron tube across the Menai Straits, but that he had been met with "looks of scepticism on all sides." Who, or rather what, were these sides he did not indicate, but if not deaf the "sides" were certainly dumb, for no report of this pretended invention was given to the public before 1845. My explanation, however, aroused his ire, and, taking advantage of his influence as an eminent engineer, he lost no opportunity of condemning my invention for joining England with the Continent by means of a submarine railway. He had his revenge, but as he now sleeps I will only say *requiescat in pace*.

Thirty years have passed away, and the present generation of eminent engineers have so far rubbed their eyes as to admit the possibility of constructing a dry road across the Channel, but are evidently aghast at the idea of attempting what one of your City contemporaries has termed an "untried novelty." They cannot go beyond the quasi-antediluvian plan of boring at a great depth beneath the waters of the Channel. Some 20 years ago your well-known correspondent Mr. W. Austin, C.E., proposed a plan of boring which at the time appeared to me the most feasible should boring be persisted in. He proposed to bore near each shore to a sufficient depth to allow the tunnel itself to be constructed with the fall from mid-Channel. The great advantage of this plan is that should any wafer find its way into the workings it would flow towards the main shafts, from whence it could be pumped out. I am very much misinformed if this plan is not adopted by the eminent engineers who have obtained a temporary concession from the French Government. Whether they will acknowledge the claims of the inventor is more than doubtful. It is not every engineer who thinks that he can afford to keep a conscience. Many think that it is too costly.

Singularly enough, however, Mr. Austin has abandoned his original plan, and he now proposes that the deepest part of the tunnel should be in mid-Channel, and it must be admitted that he gives very strong reasons for the change. The gradients would be infinitely more favourable, and would be uniform from each entrance to mid-Channel. The only question which here arises—and it is one of vital importance—is, What is the nature of the strata beneath the waters of the Channel? If perfectly dry the second plan of Mr. Austin can be safely adopted, but one of your contemporaries has recently expressed an opinion that the chalk is as full of water as a sponge, and it is well known that wells sunk deep in chalk furnish several towns with an inexhaustible supply of pure water.

The grey chalk, at a greater depth, is probably more tough and more impervious, and could the hard rock beneath be reached it would be better still. Some engineers have imagined that it would be possible to commence boring the tunnel as soon as 400 ft. in depth would be reached, but even at this moderate depth tunnels each five miles in length would be required as approaches, giving a tolerably heavy gradient, so that even under the most favourable conditions the tunnel cannot be less than 30 miles in length. It is to be hoped, therefore, that a depth of 2000 ft. will not have to be reached, as some have supposed, before finding a dry soil, as under such circumstances the tunnel would be some 60 miles in length.

It is evident that the time has not arrived for attempting such an untried novelty as the construction of a submarine railway by means of a tubular iron tunnel sunk on the bed of the Channel. This would frighten our most eminent engineers. They understand, as their fathers before them understood, the boring of the soil, consequently this, and this only, must be attempted. Let them go on by all means, and whether they succeed or not a submarine iron tube will be eventually sunk in the Channel; but the world may have to wait for the eminent engineers of the next century. Some of these are, probably, already so far weaned as to be entrusted with the feed-bottle, and while these young hopefuls are cutting their teeth the world will be getting familiar with the stupendous scheme, and may eventually cease to loose breath on hearing of an "untried novelty" in marine engineering. According to an old proverb "Little things are great to little minds," but the late Archbishop Whately uttered a still more profound truth when he said "To little minds great things appear little."

I had entered into some details on the Calais and Dover Submarine Railway, but I have already brought this paper to too great a length to offer other remarks for the present. I may shortly resume my pen.—*Jersey, Jan. 28.*

JOHN DE LA HAYE.

LAND AND WATER CARRIAGE—THE CHANNEL TUNNEL.

SIR.—In the article upon the projected Anglo-French Tunnel in the Supplement to last week's *Mining Journal* it is estimated that unless a traffic amounting to 1,200,000/ per annum could be ensured there would be no funds available for dividends, so that it is only the receipts above that amount that would be applicable to the payment of interest upon the 10,000,000/ capital; if the traffic receipts, therefore, were 1,500,000/ per annum, there would be but 3 per cent. for dividend, and the question is where is this traffic to come from? The goods traffic certainly would not be greater than it is at present, for owing to the enormous difference of cost between land and water carriage the former is never resorted to except in cases of absolute necessity. To take a favourable example for the advocates of land carriage, let it be supposed that a ton of metal castings has to be transported from Glasgow to Paris, the cost by railway, at only 3d. per ton per mile, which is much less than would really be charged, would be—Glasgow to Dover, 490; Dover to Calais, 20; Calais to Paris, 300—810 miles at 3d. per mile, or 2d. 10s. 7d.; whilst to carry the same by water there would be for freight from Glasgow to Rouen 12s. 6d., and 90 miles railway carriage from Rouen to Paris 5s. 7d., making 18s. 1d. in all, the saving being 17. 12s. 6d. upon every ton sent. As light perishable goods are now sent between the two coasts at rates and with a delay not exceeding a few hours under the most adverse circumstances, the Tunnel Company could not charge much higher rates than those now paid, and the total receipts from goods traffic would not amount to the cost of draining and ventilating the tunnel.

It is to the passenger traffic, then, that the company would have to look for profit, and assuming 500 to be induced to pass through the tunnel during the year where only one person now crosses by the boats, the profit would be infinitesimal, so that another estimate has been made. The various railway companies which provide for the London suburban traffic carry their season ticket-holders at the average rate of 1l. per mile per annum, and it has been calculated that if the whole of the men of business residing in the suburbs and brought to London daily were to remove to Calais, and take season tickets through the tunnel at 20/ per annum each, not more than 2½ per cent. per annum could be paid as dividend to a Channel tunnel company, assuming the whole work to have been completed for so low a sum as 10,000,000/. Until Calais, then, be recognised as a suburb of London, the prospect of such an enterprise becoming commercially remunerative appears to be exceedingly cloudy.

Feb. 4.

PROFITS OF CORNISH MINES.

SIR.—The enquiry made in last week's *Journal* by your correspondent, "Reader," as to the amount of dividends paid by certain Cornish mining companies is one of such general interest that I send you herewith some information which I have been able to collect as to the profits which have been earned by mining in Cornwall and the adjoining county. In Gwennap alone dividends exceeding 3,000,000/ were returned, upon an outlay of less than 200,000/, and the immense richness of Wheal Seton, West Wheal Seton, the Rosskears, the Bassets, and Wheal Buller have become proverbial, and taking the mines to the westward the results achieved have been not less satisfactory. West Caradon, upon an outlay of 5000/, paid 75,000/ dividends; the United Mines, upon 16,000/ capital, returned very nearly 500,000/; Treaseyan, with only 3120/, earned 444,422/; and South Caradon divided 365,056/, upon a capital of 640/. East Wheal Rose, again, returned 287,360/, upon 6400/ capital; and Dolcoath gave 447,719/, on an outlay of 46,194/. The original capital at North Roskear was but 7400/, yet the dividends paid were 102,000/; and the results obtained at Par Consols were still more favourable, since the shareholders subscribed but 7200/, and received 176,000/ in dividends. At Fowey Consols the return was tenfold, an original subscription of 20,480/, having been repaid by dividends amounting to 209,313/. Cook's Kitchen, with 10,000/ capital, earned 300,000/ for the fortunate shareholders; and East Crofty, where the outlay was 11,750/, returned 78,960/ in dividends. The success of Capt. William Teague at Carn Brea has frequently been referred to in the *Mining Journal*, and the payment at that mine of 260,000/ in dividends, upon a capital of 15,000/, affords very substantial evidence of what may be done by energy and perseverance. St. Ives Consols, with only 7520/ original capital, earned 90,000/. Botallack has returned the amount expended upon it five times over, less than 20,000/, capital having returned 100,000/ in dividends; and Levant, upon an outlay of only a few thousands, returned 170,000/ in dividends. Large profits were earned at Great Alfred and Alfred Consols, the dividends paid amounting to 300,000/ and 100,000/ respectively, but the amount of the original outlay I am unable to give, although I have no hesitation in stating that it bore but a very small proportion to the dividends. In Devonshire, Wheal Friendship earned, with a capital of 6400/, no less than £304,064/ in dividends; and Devon Great Consols, with little more than 1000/ of original capital, earned considerably over 1,000,000/. Devonshire has now lost these mines from the Dividend List it is true, but there is every reason to believe that both will be again known as permanent dividend-paying concerns at no distant date, and add still more to the reputation of the profitable character of British mining.

Now, as the area covered by these mines is extremely small, as compared with the mineral regions in which they are situated, and as it cannot be supposed that all the wealth of the lodes has been concentrated in particular spots, such spots happening to be those already worked, it appears only reasonable to conclude that, with the same amount of energy and perseverance as was displayed by the miners of old, Cornwall and Devon are capable of yielding as large profits in the future as they have in the past. But there is one important fact which must not be forgotten. All the mines which have earned these large profits have been put upon the market unsaddled with heavy amounts of purchase-money—the actual cost of the machinery, and the amount really paid out of pocket for miners' wages being all, with the solicitors' fees for drawing up the conveyance, that the adventurers have paid. Thus, in the case of South Caradon 640/ sufficed for making all the necessary purchases, and providing the requisite working capital, and as all had a real interest in the successful development of the property the concern was economically brought into profits, and has always continued so. Upon the present system of forming companies the results might

Meetings of Public Companies.

PATESWOOD UNITED COAL, CANNEL, AND IRON COMPANY.

The shareholders of this colliery held their first general meeting on Feb. 1, Crewe being selected as the most central station for that purpose. A large number of influential gentlemen connected with it attended, all of whom expressed their utmost satisfaction with the manner in which the works were carried out, and the greatest confidence in the board of directors, who were unanimously re-elected. The business of the meeting consisted chiefly in passing the adoption of the balance-sheet, and discussing the merits of the colliery. As with every new undertaking the first costs are invariably heavy, and generally fall upon the few, with the above undertaking the outlay has not been excessive, and the support given has been very flattering. There is at present prospect of a good return, as all the dead work has been nearly completed. The Main Coal and Brassey seam will in a month or so be capable of an output of from 120 to 150 tons per day, and, of course, will daily increase. All necessary plant is erected, and in a position for a draught of 400 tons per day. The quality of the seams are also very good, and commands excellent prices. There appears no reason why the directors at their next general meeting cannot declare a good dividend.

The engineer's report will shortly be published for the benefit of the shareholders, when the prospects of the colliery will be more fully discussed.

NEWFOUNDLAND MINING COMPANY.

The third ordinary general meeting of shareholders was held, on Monday, at the City Terminus Hotel, Cannon-street.

Sir ALEXANDER MALET, Baronet, K.C.B., in the chair.

The SECRETARY read the notice convening the meeting. The CHAIRMAN said there were so many and such important matters requiring their attention that day that he was sure they would see the expediency of his confining the remarks he had to make to the briefest possible compass. He felt bound, however, to summarise the history of last year. Preceding the change of management he must review their present actual state, condition, and prospects. At the extraordinary meeting held on Sept. 8, and in the circular then issued, as well as in the previous circular of June 1, the history of La Manche Mine was summed up, and at that Mr. Webster gave such full details of the then existing state of things that he need do no more than cursorily allude to such occurrences as took place previously to the visit Mr. Webster paid to Newfoundland in June and July, which coincided with the change of management. The most important of these events was the failure of the experiment of working the mine by the Irish miners sent out in the autumn of 1873. That it was a failure he was free to confess; but whence arose the mistake? He was reluctant to impute blame to anyone who was absent, and their late manager, Mr. Cohn, was not there to defend himself, and he was afraid he had no friend present at the meeting to take his part; but after patient enquiry they could come to no other conclusion as regarded this matter than that Mr. Cohn's management of those men had been a most injudicious one. The consequence had been they worked ill, were insubordinate, and at length showed beggary to a violent and unprovoked assault upon the mining captain. Now, from all enquiry which it was in their power to make, it appeared that that outbreak had been the result of a series of petty grievances which sufficed to explain, if not to justify, the Irishmen's resort to what they might consider their national mode of showing their sense of ill usage. Moreover, the miners instituted proceedings against them, and in the strong feeling which the occurrences known to have taken place at the mine had produced, it was impossible for them to get a verdict in their favour, and it had been necessary to compromise the action, which was done by Mr. Webster, they all believed, in a very judicious way. (Hear, hear.) But Mr. Webster's second visit to the mine showed there were grounds for even graver charges against Mr. Cohn than want of tact and kindness in dealing with his men. Serious negligence and mismanagement in the working of the mine had been discovered, the development had been neglected, and the reports sent home to the quantity of ore raised were deceptive. Mr. Cohn had always led them to expect that a cargo of ore (say, 250 tons at least) would be for shipment in the month of June or July, and that they might fairly expect a second shipment in the course of the season. The returns of ore raised sent home by Mr. Cohn, backed by Capt. Curnow's reports, kept up this expectation; but although they were told at the end of March that 300 tons had been raised, Mr. Webster found in June on arriving there that barely 40 tons were ready dressed and fit for shipment, and that of the stuff raised and returned by Mr. Cohn as ore much ought never to have come to surface, since thereby not only were heavy and undue costs in hauling for the mine incurred, but further labour was rendered necessary in spalling and preparing the ore for dressing, which never ought to have been called for. In cases of that kind it was not easy to apportion the blame, but as Capt. Curnow was an experienced miner it was difficult to exonerate him or to lay much of it, as he had heard it attempted to be done, on the Irish miners. That it was no fault of the nature of the minerals which the mine yielded was abundantly evident by the specimens on the table before them, which were not as they were assured selected for their richness, but strange to say taken for the most part from Mr. Kay's winze, a part of their mine which Capt. Bradley had found virtually abandoned, and not only abandoned, but choked with old timber and rubbish—evidently thrown down purposely, and as the miners informed Capt. Bradley, by Capt. Curnow's orders. In ceasing to advert to Mr. Cohn, he was bound to exonerate him from one of the imputations laid against him—that he had left largely indebted to the company. That was an error—an examination of the accounts showed that in dealing with the stores the cost charged to the miners must have been carried to the company's accounts, and that Mr. Cohn, as had been reported by the accountant, had in no way benefited by those sales. He was, therefore, very glad to exonerate him from the charge, which would have been highly dishonourable if it could have been proved. He should now turn to the consideration of the present state of the mine, and review what had been done since the new mining captain, Capt. Nancarrow, had entered on his duties, and Capt. Bradley commenced the supervision of the mine, and to what he had to say he would beg to call their particular attention. First, he would remark that since the new management the mine had been very much improved. These were the proceedings which had been taken: Hoppers unduly planned (understand) had been abandoned, the sinking of winzes, Doctor's and McCoy's, to gain the 20 fm. level had been duly prosecuted, drifts to east and west in the 20 fm. level below Doctor's shaft were already commenced, in ground yielding 1½ ton per fathom. McCoy's shaft had been re-opened, and sunk towards the 20 fm. level in a lode 4 ft. wide, yielding fully 4 tons per fathom, and the widening of Kelley's shaft as a central winze for the future hauling of the ores from the lower levels had been planned, and he believed already commenced. New tramways both above and underground had been laid down; everything, in short, done as far as the means at the disposal of their executive allowed for the efficient working of the mine. The machinery had been supplied with a new wire-rope for winding, while additional tram rails had been sent out from this side and laid, a new coal store put up, and the hauling and pumping power kept well in order. He must not omit to mention an important occurrence in the mine—that in driving at the 20 fm. level below Doctor's shaft the lode had yielded some fine stones of copper—an indication the value of which would not escape the appreciation of any miner. (Hear, hear.) The prospects of the mine were encouraging. It was certain the Isa only brought home 12 tons of ore, but she was of small capacity, and having got around nearly 30 tons were thrown overboard, for which they would obtain salvage. But in the short time since Capt. Bradley had been at the mine, and with scarcely any stopping going on, he had raised and got ready for shipping over 40 tons of ore, which was more than, or as much, as Capt. Cohn did in the twelve months he was there. Now, that ore had been raised by Capts. Bradley and Nancarrow in the legitimate working of the mine—by driving and sinking winzes and drifts. (Hear, hear.) The shareholders had, then, a mine which had only yet been sunk to the 20, a mine with a lode traced on the surface through a large extent of the property leased to us, three miles in extent. Of this only some 1800 ft. had been opened, and the mine was now giving the fairest indications of improving in depth. These were prospects which encouraged them to look forward to a long series of productive years. Before concluding he wished to advert to a very satisfactory arrangement which he might say was made of a question which had given them some anxiety. Their lease comprised a territory three miles in length by two miles in breadth, and it was rumoured that one-half of the land was to be taken from them. But an enquiry made by their solicitor in the proper quarter assured them that nothing of the kind had been intended; that their occupation of the land would not be disturbed, and that if any misapprehension had arisen it would be rectified by their landlords in the early spring of the year. He must say that all their reports from Capts. Bradley and Nancarrow confirmed the confidence they had in the mine. The mine was assuming quite a new appearance under their management, the works, as he was assured, being conducted with the greatest economy consistent with the due prosecution of them, and he believed that as long as Capts. Bradley and Nancarrow remained in office the management of the mine was in safe and efficient hands. (Hear, hear.) It was only that day that he had received a bill of sale of their ores, and he had the greatest satisfaction in telling them that the assay comes higher than had been anticipated, and consequently the return was greater. It assayed from 80 to 82 per cent. of lead, and the arrangement was that the silver, of which there was some as high as 6 ozs., should be paid for ever. The payment for the lead came to nearly 30s. more than their cargo last year was sold for, all tending to show the shareholders that the mine was improving. (Hear, hear.) He (the Chairman) then concluded by moving the adoption of the report and accounts.—Colonel FEILDEN seconded the resolution.

Mr. TUBBY asked why there had not been an independent audit of the accounts, as had been promised in November last?—The CHAIRMAN replied that there had been an independent audit.

The CHAIRMAN explained that the ordinary auditor had confirmed the independent audit which was made by Mr. Thornton.

Mr. CHANDLER remarked the report, the candour of which he was bound to acknowledge, called attention to Mr. Cohn's management and mismanagement. What he had heard he cordially endorsed, but he should like to ask what was the extent of Mr. Cohn's interest in the company? The nominal capital is 10,000*£*, in shares of 10*£* each, and it appeared that of this there had been raised 74,000*£*. He wanted to know how much of the item lease of mines, &c., was represented by shares and how much by cash?—The SECRETARY replied, the purchase-money was partly composed of 46,000*£* in shares.

Mr. CHANDLER said he thought the amount of preliminary expense—4800*£*—was a very undue proportion to the capital raised.

Mr. DEANE thought that if even the directors did make a mistake in allotting after so small an amount of money subscribed, they did it under the sanguine feeling of the moment, and they did it, moreover, for the best at the time. It was scarcely a very profitable proceeding to discuss the matter, seeing that not only had these pounds been passed at a previous meeting, but that they could not alter them now.

Mr. CHANDLER said the directors were now appealing for a large portion of the capital that they did not obtain at the time.

Mr. DEANE replied that their only argument was that they were strongly impressed with the value and excellence of the mine; and, indeed, so far as the mine was concerned, it had absolutely proved far better than what they then thought of.

Mr. CHANDLER wished to know what actual amount of money they started with?

The SECRETARY replied about 24,000*£*. He said also that the Irish labourers went out in two lots—one in September and one in October.

Mr. DEANE said that, at the request of his co-directors, he went over to Ireland, and there engaged the men he got the highest possible character with them from the managing director of the mine. He took the trouble to put besides each man's name the length of time that he had been engaged, and he only sent those men out, but he accompanied them as far as Queenstown, and saw them off. He felt assured that if they had not quarrelled with Capt. Cohn they would have worked well and satisfactorily.

Mr. CHANDLER asked whether they could not somewhat economise their expenses? There were nearly 8000*£* under the head of expenditure, against one solitary shipload.

Mr. DEANE thought the directors set the example—they had never touched a single penny of the company's money. (Hear, hear.)

The resolution for the adoption of the report and accounts was then put to the meeting and carried unanimously.

The CHAIRMAN said he wished to preface the second resolution he had to put to the meeting by a short statement of facts, and by certain remarks pertinent to the question. He had to move a resolution of raising more capital, and it was necessary that he should first inform the meeting that their capital was expended, and that there were, consequently, urgent demands made upon them which they were unable to meet, and the alternative was that unless they were supported by the shareholders in the attempt to raise fresh capital they have no result but that of closing the mine.

Before proceeding to that extremity he wished to remind them what their property was, and what they had to lose. They possessed a lease for 21 years of 3000 acres of land, with the power of buying the fee simple within 10 years. On this land a mineral lode had been traced for nearly half the length of the property, and as it again showed itself at a distance of seven miles across the bay the presumption was it underlaid the entire extent of the concession. The mine was a young one; it was only 20 fms. in depth, and it was improving at that depth. The recent sale of ore at Swansea, at 15*£*. 6*s*. per ton (the silver over 3 ozs. per ton, to be paid for above), was a most satisfactory proof of the high quality of the ore. (Hear, hear.) The assays were the positive proofs that what he asserted was true. The extent of the ground might enable them to sell or lease a portion of it. And as in all probability a projected telegraph would run through the land there was a good prospect of realising a good price for it. The recent survey of the county by Mr. Murray, which had been circulated largely in the colony, and under the auspices of the Governor, said that the land was not only of agricultural value but capable of rearing all kinds of cereals. It was well adapted to grow roots, and might become a great grazing country, where cattle and sheep could be raised for exportation. He only mentioned these particulars to show them that if they abandoned such an opportunity they sacrificed a very valuable property. He then begged to move the following resolution:—"That the directors be, and they are hereby, empowered to raise a sum of 15,000*£*, for the general purposes of the company by the issue of mortgage debentures of 50*£* each, to carry interest at the rate of 10 per cent. per annum, to be charged upon the property of the company, such debentures to be redeemable at par at such times and in such manner as the directors may determine by annual drawings or otherwise, as they may think fit, such drawings not to commence at an earlier period than two years after the issue of the debentures." A rider was here introduced, but being subsequently altered it is unnecessary to quote it.

Mr. GEORGE PEARCE SERECDOL said that he was very happy to second that motion. They had a valuable property, but it really required more money, and without it the affair must collapse, or there must be some re-organisation of the company. They acknowledged many mistakes, but they had all paid their money into the undertaking the same as every other shareholder present, and it had been a matter of very great disappointment that a dividend had not been earned long before this. But the fact was they had been wholly deceived by Mr. Cohn. He had such a large interest in the company that they thought they could not do better than trust to him, and their colleague Mr. Webster confirmed those reports of his.

Now, it was not until last May that they got rid of Mr. Cohn in the management of the mine, since which time a new era had commenced in the history of this company. The point with them at present was to consider whether the old company should go on by the old process of raising money, or whether they should wind-up and endeavour to make some terms with the creditors of the company. They were indebted to Capt. Feilden to the extent of 5000*£*, and he trusted the shareholders would come forward to enable them to repay that advance, and furnish the company with sufficient funds to carry on the development of the mine in a more vigorous and efficient manner, because he felt confident that they would ultimately realise dividends of from 10 to 15 per cent. on the entire capital of the concern.

He felt that every effort should be made before abandoning the company, and therefore he would propose, as a means of inducing subscriptions to these debentures, that on the repayment of each debenture an allotment should be made, as a sort of bonus, of unissued shares of the company, to the extent (say) of one-half of the amount of debentures so paid off. (Hear, hear.) They wanted the money, and if they had it there were just these alternatives to choose from.

A SHAREHOLDER asked if only one-half or two-thirds of the 15,000*£*. were subscribed what would they do?

The CHAIRMAN replied that would be ample to continue the working of the mine. If they raised only 10,000*£*. they could ensure the vigorous working of the property, and feel very confident of its yielding good returns.

Another SHAREHOLDER said it occurred to him to suggest an immediate bonus, but of lesser amount, should be given—say, two 20*£*. shares for every 50*£*. of debentures subscribed. (Hear, hear.)

Col. FEILDEN, in supporting the resolution, begged to say a few words: and, first, he would point out to them that it was a question of life or death. He was most anxious that the shareholders should not part with their valuable property, and he was quite prepared to take a certain portion of these debentures. He was willing to take up 1000*£*. of them—that was to say, he would transfer 1000*£*. of his debt of 5000*£*. to these debentures, and then his claim against the company would be only for 4000*£*. But then came the question if only 5000*£*. was raised 4000*£*. would not be sufficient to carry on the works, and they would be in the same difficulty as now, because it was to be remembered they wanted 2500*£*. to pay off present liabilities. Under these circumstances they wanted 10,000*£*. at least to carry them on with the stores and provisions through the winter to June before getting another shipment of ore. Then he thought they would have very heavy shipments, two or three, and they would then be in a very flourishing condition. In meantime, however, it was absolutely necessary that money should be raised, and he earnestly appealed to the shareholders in their own interests to assist the directors by subscribing for debentures.

Some further discussion then followed, and eventually the following rider was put to the resolution given above, and on being put was duly carried—"Each debenture holder, on paying the amounts of his bond, to have allotted to him two fully paid-up shares of the unissued capital of this company."

The CHAIRMAN next moved, and Mr. SERECDOL seconded, and it was resolved "That the directors be and they are hereby empowered to execute such deeds and documents, and to take such steps, as they may be advised for carrying out the above resolution."

On the motion of the CHAIRMAN, seconded by Col. FEILDEN, the election of Capt. Bradley as director of the company was unanimously confirmed.

Sir Alexander Malet and Mr. G. E. Webster, the retiring directors, were next duly re-elected.

Mr. Walker was then elected a member of the board.

The proceedings were then brought to a close by a vote of thanks to the Chairman.

FLAGSTAFF SILVER MINING COMPANY.

A *pro forma* meeting of shareholders was held at the offices, Great Winchester Street, on Monday, Mr. TWEEDIE in the chair.

The SECRETARY read the notice convening the meeting, and the minutes of previous meetings were read and confirmed.

It was moved by the Earl POULETT, seconded by General CAMPBELL, and carried unanimously, "That the balance-sheet and directors' report (copies of which had been sent out to each shareholder) be taken as read, passed, and approved." It was moved by General CAMPBELL, seconded by Mr. ARUNDEL, and carried unanimously, "That the retiring directors, the Right Hon. the Earl Poulett and Mr. Henry Syme, be eligible, and be hereby re-elected.

The CHAIRMAN then stated he would be happy to reply to any questions the shareholders might wish to ask, which led to a conversation of some length as to the position and prospects of the company, and the course which ought to be adopted.

Mr. KINGSFORD remarked that the balance-sheet was brought down to Nov. 1, and enquired whether a supplementary statement could not be obtained bringing the figures up to that date?—The CHAIRMAN, in reply, immediately gave all the particulars asked with regard to the financial condition at this date.

The CHAIRMAN moved, and Mr. KINGSFORD seconded, and it was unanimously carried, "That the thanks of the company be voted to Mr. Lewis Chalmers, the manager, for the ability and energy which he had at all times shown in his management of the company's affairs."

It was moved by Earl POULETT, seconded by Mr. ATHOLE BURNETT, and unanimously approved, "That the thanks of the directors and shareholders be, and are hereby, tendered to Prof. Rossette W. Raymond, United States Commissioner of Mining Statistics, for his recent gratuitous, most able, and eminently satisfactory report to the value and permanency of the company's mines at Silver Mountain."

Lord POULETT then said he had great pleasure in stating that Mr. Joy, an independent shareholder, who held a very large interest in the company, had intimated his intention of shortly visiting the mines, and personally inspecting them. This, as his lordship remarked, Mr. Joy was well qualified to do, being an engineer, and formerly an articled pupil of Sir John Hawkshaw's.

Mr. Joy, in reply to a question by the CHAIRMAN as to the time when he proposed to start, stated he would endeavour to do so as soon as possible, but he was afraid not in less than three weeks.

It was moved by Mr. ATHOLE BURNETT, seconded by Mr. POOLE, and unanimously carried, "That the thanks of the shareholders be voted to the Chairman and directors for their long and gratuitous services, and to the Chairman for his able conduct in the chair on this occasion."

Lord POULETT briefly responded, which closed the proceedings.

stand adjourned?"—Sir LEOPOLD HEATH said they might suppose the accounts would be received by the end of February.

The CHAIRMAN thought it probable the length of the adjournment would be about two months.

Mr. SNELL did not think it would be so long.

The CHAIRMAN thought the shareholders might be quite satisfied that before the expiration of two months, or it might be in a month or five weeks, the adjourned meeting would be held.

Mr. T. G. TAYLOR said the length of the adjournment would probably be governed by the way in which Mr. Davis carried on his speculation in the shares.

The CHAIRMAN said the board could not deal with that; that would not influence the board.

Mr. TAYLOR said that as Mr. Davis might appear to be coming to terms the shareholders should be informed, and suggested that they should be kept apprised of the progress of the negotiations, as it was not pleasant to be over-reached.

The CHAIRMAN said he would try they should not be over-reached, but it must be borne in mind they were in a very difficult position.

Mr. TAYLOR asked if it was not possible for the company to get a valid title to the property without negotiating with Mr. Davis?—The CHAIRMAN said they had a valid title, subject to Mr. Davis's legal claim.

Mr. STRATTON (a director) urged that the shareholders should have confidence in the board; it was clearly to their interest to do so.

Mr. MOFFAT seconded the resolution, which was carried unanimously.—On the motion of Mr. M'CLURE it was resolved—“That the directors be, and are accordingly hereby, authorised and specially empowered (1) to surrender the whole or any part or parts of the ground comprised in the existing lease, or any of them; (2) to enter into a new lease or new leases of the same ground, or a part or parts thereof; (3) to agree with any person or company for their taking a lease, or leases, of any part, or parts, of the ground included in the existing or new lease or leases, all on such terms and with such conditions as the directors shall deem advisable.”

It was also agreed that the Chairman, Mr. Andrew M'Tear, and Mr. Alexander Harvey be re-elected directors of the company, and that 100/- be allowed the directors to be divided among them.

After Mr. TAYLOR had given a technical explanation of the workings the meeting separated.—(The sale of ore during January, 1875, amounted to 1363t. 4s. 6d., and in the corresponding month last year to 843t. 15s.)

LONDON AND CALIFORNIA MINING COMPANY.

The ordinary general meeting of shareholders was held, on Thursday, at the City Terminus Hotel, Cannon-street,

Mr. CHARLES WRIGHT in the chair.

Mr. JOHN SAUL (the secretary) read the notice convening the meeting. The report of the directors and the balance-sheet were taken as read.

The CHAIRMAN said he had not expected for the second time to be placed in the chair while Mr. Price was really the Chairman of the company. On the last occasion he (Mr. Price) was called away by a very unfortunate event, and at the present time he had only just returned from the Continent, and, therefore, did not consider himself up in matters, and he (the Chairman) was compelled unwillingly to take the chair. He would not naturally have taken the position in which he was now placed, and he hoped the shareholders would excuse any omissions. Before asking them to pass the report and accounts he would as usual, with the leave of the shareholders, offer a few remarks explanatory of their position. The reports and accounts presented to-day were for the half-year ending Sept. 30, 1874. The profit and loss account showed a loss on the working of the half-year of £1027. 1s., an improvement on the previous half-year of £134. 5s. 3d., the total loss up to the close of the accounts being £7,053. 4s.

As the Erie and Pennsylvania Mines were closed in the period under review, he would only add regarding them that a profit of £477. 10s. was made on account of the last mine for the letting of the hoisting works, the right of passage through the mine, and crushing ore for their neighbours. The Original Amador Mine gave them during the same period 992t. 10s. in bullion, which, with the absence of the payment of any commission to the Messrs. Cross, made a very favourable difference in the half-year's working above referred to. This was all that he thought need be referred to, or that the shareholders would wish to know about, the report and the accounts he would have to refer to again presently. The agents' report for the half-year stated that after opening up 816ft. of ground by shafts, drifts, and cross-outs in the 8th level a lode was found large and well defined, but had not gold enough to yield a profit. It was then decided to suspend operations in the old quarters, except in the gutch shaft, for which it was intended to reach under the prospect shaft, and also to ventilate the mine, and to use it for the purpose of hoisting the produce of the shaft. Of course, it did not follow that there was no gold in it found in the old workings, and probably at great depth. However, this information was worth very little; at all events, if gold was there the probability was that as regards the present generation the discovery would be of little moment, for in all probability they would gain nothing by it. He would give the shareholders a brief outline of the company's properties. At the Original Amador Mine they had a length of 1451 feet, and a breadth of 500 feet, bounded by the Keystone Mine to the south of it, and by the Bunker Hill Mine on the north of it. The working of the Amador Mine had up to the end of March been confined to the southern end of the mine, but Mr. Johns then turned his attention to ground further north. He then began with the Prospect shaft, of which he (the Chairman) would give a short history as the shortest way of disposing of it, as it would give the shareholders a better view of the prospects before them. After consultation between Mr. Johns and Mr. Olliver, at the end of March, 1874, it was decided to prospect new ground by cutting a trench 250 ft. from the northern boundary, and they found a small gudge, or clay seam, on which the Prospect shaft was sunk. At a depth of 80 ft. rock worth from \$12 to \$15 per ton was discovered, and the ore raised from this point has resulted in a profit of about \$4000. Sinking was continued to a depth of 130 ft. where the first level was run in a northerly direction, following the vein. Mr. Johns in his report to the directors stated that this was the finest body of ore that he had ever seen. From August to the end of the year 1000 tons of ore had been taken out of it, giving an average of 60 tons per week; and lately a winze had been sunk at the end of the level through ore worth \$40 per ton, and as it was running north the ground gave more favourable indications for fresh discoveries. In the middle of October 10 stamps were set going, and on December 6 this number was increased to 20, and the value of the ore crushed was \$35,274, at a cost of \$16,904, giving the company a net profit of \$18,370. This did not give a true state of the case, for the milling and mining alone would not probably cost that amount, but more money had been spent, and more attention had been given to the development of the property than to the crushing of the ore. It would thus be seen that the mine was not only paying its way, but that it was giving a very considerable profit, after providing for all liabilities. On December 9 a second level was commenced 75 ft. below the first level, in the hope of reaching the lode at that depth. By the latest accounts 50 ft. had been driven without finding it, but as the level runs to the north, and there is a tendency in the lode to run east, it might have been missed. If the lode should be found endeavours would be made to reach it at a depth of 400 ft. from the Bunker Hill Mine, where he hoped they would succeed in finding what they were looking for. He must now refer again to the balance-sheet in connection with the loan from Mr. Coulter, where it would be seen that he (Mr. Coulter) was a creditor to the amount of 16,000/-, with interest amounting to 950t. 11s. 6d., and bill payable for 1000t. This loan had, unfortunately, figured in the last three balance-sheets, but if the loan had not been made when it was the company would have been wound up 12 months ago, and the property thereby sacrificed. They must not forget that but for the loan no new discoveries would have been made, and the money could not have been got from any other quarter. It was also fortunate that the discoveries were made when they were, for the money was expended, with the exception of about 2000t. If the money lent had all been spent without any discoveries having been made their position would have been much worse than it was 12 months before. Mr. Coulter having made a gift to the company of 16,271t. This gift would reduce the liability of the loan account from 17,950t. 11s. 6d. to between 1000t. and 2000t., which the shareholders would, doubtless, be very glad to see, for it would make the next balance-sheet look much better than that now presented, and it would enable the company to go on with the new discoveries, especially as the mine had been provided with excellent machinery. The directors hoped, and he might say expected, that no large expenditure would be gone before the company was earning for the pockets of the shareholders. By his remarks the shareholders have seen that they were seeking for the lode at four different points, and if the lode follows the example of the Keystone lode, with which their mine had very much in common, this company ought yet to pay very satisfactory dividends. (Applause.) The directors had that morning received a telegram from Messrs. Cross and Co. (as they had written for the very latest information), so that they might be able to lay it before the shareholders, which stated that they were looking for an early improvement in the second level, north of Prospect shaft. The ground had improved, and they were expecting to make better progress. The first clause referred to the ore, and the second as to the progress made in running the drift. They also stated that the Bunker Hill Mine vein gave indications of permanence, and maintained its quality close to our lines. The upper stopes in the first level had improved, and the clean-up was estimated at \$18,000.

A SHAREHOLDER: Is that the clean-up at Bunker Hill?—The CHAIRMAN: No, at the Original Amador Mine. Messrs. Cross and Co. also stated that the first level, which now runs north and south, was dipping to the hanging-wall in greenstone, while the foot was in slate. Most of the successful lodes were found in ground of this formation; and, though it did not prove that they would have a good lode, yet it was the rule, and if it should not turn out so it would be an exception to the rule. Mr. Johns wrote to Messrs. Cross and Co. on Dec. 11, informing them that there were all the indications in the second level that the lode was close at hand, and he (the Chairman) hoped that by the next news they received they would hear of its being discovered. He had endeavoured to condense what he had to say that he might not take up their time, and he had given the leading features of the movements. At the meeting held twelve months ago, at which he had the honour to preside, they were in a state of great depression with respect to their mine, and six months later, when he occupied the same position, they were also in a state of great depression, but things were looking more favourable. Cross and Co. had given up their commission, and the new shaft was being sunk, so that they were seeing their way to some improvement. From that time to six months ending Sept. 30 last they had gone on spending money, but from that time to the present things had, he thought, been entirely changed. He certainly thought they had turned the corner, and from every indication there was good reason to expect that they were in a position of progress; and when any discovery was made the shareholders would have early information of it. (Hear, hear.) With these remarks he would propose that the report of the directors, together with the accounts, be received and adopted.—Mr. THOMAS HOWIE begged to second the motion.

A SHAREHOLDER said there was one matter connected with the Chairman's speech which he did not quite understand. He (the Chairman) had stated that owing to some gift which Mr. Coulter had made the loan account had been reduced to between 2000t. and 3000t. Perhaps the Chairman would explain the matter further.

The CHAIRMAN, in reply, said that he should have stated that Mr. Coulter had the intention of giving up the whole of that sum to the shareholders. (Cheers.)

The SHAREHOLDER: That is a very important point left out in your speech. Mr. TENDRION said he certainly thought the profits would have paid that amount. Some of the remarks made by the Chairman were exceedingly encouraging, and he took it that as the letters and telegrams read by the Chairman were of a later date than the report the unfavourable nature of the following clause would have been removed:—“Level No. 2: There is no indication of a vein in this level yet. The ground is very hard, and the greenstone is dipping slightly to the west, which is annoying, as we shall have to cross-cut into the greenstone in order to find a ledge, which will delay matters considerably.” He took it that they might consider now that they were on a fair path to cutting the lode in this level (No. 2), and that the discouraging part of the paragraph might be removed.

The CHAIRMAN said that was the case, as might be seen from the extract from the letter which he had read.

Mr. BERGTHEIL asked if there was any information to be given with regard to the committee of enquiry appointed; whether they were likely soon to report to the shareholders, and if the gift of 17,000t. had anything to do with it?

A SHAREHOLDER: What are the circumstances under which the loan to Mr. Coulter has been cancelled?—The CHAIRMAN: I am really not at liberty to reply to that question.

Mr. BERGTHEIL thought it would be better to leave the matter until the committee had issued their report.—The CHAIRMAN acquiesced.

Mr. SCHOFIELD said the paragraph with respect to the probability of a discovery of the vein at a deeper level was rather discouraging, and he would ask if the lode maintained its width at a depth, and if the winze was holding down?

The CHAIRMAN, in reply, said the winze was going through ground worth \$40

per ton, and was maintaining its width. He had given the shareholders the facts, and had not exaggerated them, or drawn on his imagination.

Mr. SURGEY (one of the committee of enquiry) said the report of the committee was now in the hands of the directors to consider. The committee was appointed by the shareholders to make a report on the position of the company, and this they had done.

The CHAIRMAN said, in answer to that remark, he should state that the report referred to was sent to the directors one day before the notice was issued calling the meeting, and, therefore, the directors would not have had time to get it printed and a special meeting called within the time legally required. Their intention was to call the special meeting for the consideration of the report of the committee at the same time as the ordinary meeting. The report had been returned to the committee after some consideration on one of the clauses. As this report dealt with the directors and their doings, as well as everything else connected with the company, it would be completely out of place for the directors themselves to publish it. As the committee had sat in judgment upon the report it would be their place to publish their report. The resolution appointing the committee stated that the committee should report the result of their enquiries, together with any recommendation they might think fit to the directors, and to the committee thought proper, to report to a general meeting of the shareholders to be called for that purpose. The report was an able one, and he thought as the committee had had the labour of compounding it that they should also have the honour of publishing it for the shareholders, and the directors would do their best to call the shareholders together when they had made up their minds.

Mr. WOLSTENHOLME (a member of the committee) said they had not enquired more about the directors than about the company generally. They had, to the best of their ability, given a statement of facts which had been communicated to the directors. He thought the observation that the committee had sat in judgment on the directors was a little uncalled for.

The CHAIRMAN, in reply, said that was his own opinion, and not that of the board. It was quite proper for the committee to do what they had done. The directors were quite prepared for the light, but considering the relative position in which they stood he thought the committee should publish their report.

The SOLICITOR of the company said the directors had not yet considered the report. Mr. Price, the Chairman, had only just returned to this country, and the board had only been returned by the committee that morning. There had been no board meeting to consider it, and, therefore, he thought any observations upon it were premature.

Mr. SCHOFIELD hoped the matter would be allowed to rest. If it was a matter of any delicacy as to who should publish the report he did not see why such a feeling should exist.

Mr. BERGTHEIL could not see how the report could affect the directors, as it had come to the shareholders themselves as it left the hands of the committee.

Mr. SURGEY said, after the report was made some circumstances occurred which it was desirable to notice in the report, and, therefore, the report was returned to the committee to make certain alterations, and the report as a report had only been handed to the directors within the last day or two. The committee had endeavoured to perform their duty in a manner to the benefit of the company. (Hear, hear.) With respect to its publication, he thought every shareholder should have a copy, but as to sending copies to the press that was a very different matter.

After a few other observations the reports and accounts were unanimously passed, and it was arranged that the directors should consider the report made by the committee of enquiry, and consult with the committee as to its publication.

On the motion of Mr. BERGTHEIL a vote of thanks was accorded to the Chairman and the proceedings then terminated.

THE LOVELL MINING COMPANY.

A general meeting of shareholders was held at the offices, Chiswell-street, on Jan. 30.—Mr. J. L. GODDARD in the chair.

Mr. ALFRED LAWRENCE (the secretary) read the notice convening the meeting.

Mr. G. P. BIDDER, jun., asked if Mr. Berry, the solicitor, was a shareholder?—Mr. BERRY objected to such a question.—Mr. BIDDER said he put the question to Mr. Lawrence, the secretary, and not to Mr. Berry.—Mr. LAWRENCE said that Mr. Berry was a shareholder.—Mr. BIDDER said the reason he put the question was because at the last meeting Mr. Berry was present, and although not a shareholder took a very prominent part in the proceedings.

Mr. BIDDER asked the reason the meeting had been convened for such an inconvenient time as two o'clock on a Saturday, and at the end of January, when it was not due till the first or second week in February?—Mr. BERRY said the calling of a meeting was the province of the secretary.

The SECRETARY said the meeting had been called because the cost-sheets and everything was ready to do so.

Mr. M. GREENE presumed it was the London manager who influenced the calling of the meeting.—Mr. CHAPMAN (London manager) said there was no particular reason for selecting such a day.

The minutes of the last meeting were then read and approved.

A statement of receipt and expenditure (made up to January) was then submitted, showing a debit balance of 220t. 17s. 10d.

Mr. BIDDER said the secretary had not read the statement of assets and liabilities.

The SECRETARY said it had not been made out.—Mr. BIDDER said they must have that statement.—Mr. LAWRENCE said the list of liabilities had not come up from Capt. Nancarrow.—Mr. BIDDER said that the accounts could not be passed till that list had been received.—The SECRETARY said that the account was between Messrs. Bartlett and Chapman and Capt. Nancarrow.

Mr. BIDDER said that according to the Act of Parliament there must be submitted a statement of the debtors and creditors of the mine.—The SECRETARY said he was unable to do so.

Mr. BIDDER asked if there were any debts due to the mine for moneys unpaid on shares?—The SECRETARY was not aware of any.

Mr. BIDDER asked whether, when Messrs. Bartlett and Chapman's affairs went into liquidation, there were not considerable moneys due from them?—Mr. BERRY said this was quite a legal question, and he did not know what possible object there was in putting it, except it be for the purpose of getting evidence to put into an affidavit. He objected to the question.

Mr. BIDDER asked if there were any debts due to the mine for moneys unpaid on shares?—The SECRETARY was not aware of any.

Mr. BIDDER asked whether, when Messrs. Bartlett and Chapman's affairs went into liquidation, there were not considerable moneys due from them?—Mr. BERRY said this was quite a legal question, and he did not know what possible object there was in putting it, except it be for the purpose of getting evidence to put into an affidavit. He objected to the question.

Mr. BIDDER submitted he was in order in ascertaining whether what he had heard was a fact—that Messrs. Bartlett and Chapman were large debtors to the mine. He asked the secretary whether that was a fact?—The SECRETARY could not say. Messrs. Bartlett and Chapman were the treasurers and bankers to the mine.—Mr. BIDDER felt bound to press for a statement of assets and liabilities, because he believed Messrs. Bartlett and Chapman, whose affairs had been in liquidation, were, and still are, large debtors in respect of unpaid sums due upon shares taken up and not paid for. He could not assent to the passing of the accounts.—Mr. GREENE moved that they be passed, and that the meeting be adjourned in order that a statement of assets and liabilities may be prepared and submitted.—Mr. KNOWLES seconded the proposition.

Mr. BIDDER moved, as an amendment, that as the accounts are incomplete and unsatisfactory, and without a statement of assets and liabilities as required by law, they be not passed.—Capt. ROBINSON seconded the amendment.

Upon the votes being recorded, the secretary claimed to vote upon 823 shares.

Mr. BIDDER took exception to the vote, because he had reason to believe that the secretary held those shares, or a large portion of them, as trustee for the company.

The SECRETARY said he held them in his own right.

Mr. BIDDER asked if a large portion of those shares did not really belong to the company?

Mr. BERRY protested against such a question, and advised the secretary not to vote to it.

Mr. BIDDER said the question was put—Did Mr. Lawrence hold those shares in his own right? and he replied in the affirmative. As the secretary had reason to apprehend these questions were being put for the purpose of litigation, he was perfectly justified in refusing to answer them.

After some further discussion the amendment was put, and carried.

Mr. BIDDER then proposed that a committee of management be appointed, who shall have the business control of the books, and power to appoint or dismiss any officer of the company.—Mr. GREENSIDE seconded the proposition, which was put.

Mr. BIDDER then proposed that Messrs. G. P. Bidder, jun., J. L. Goddard, and R. Griffin be appointed members of the committee. Mr. Chapman had circulated post-cards stating that his (Mr. Bidder's) sole aim was to serve his own private ends. To prove that such was not the case, he did not propose that even a reasonable remuneration should be paid to the committee for their services. He then proceeded to explain that in consequence of having been refused a list of the shareholders, with their addresses, he had been compelled to instruct a solicitor in Cornwall to apply to the Vice-Warden. The Vice-Warden expressed an opinion that the list should not have been refused.

Mr. BERRY said the Vice-Warden never made such an observation.

Mr. BIDDER said the Vice-Warden made the order, with costs.

The resolution appointing the members of the committee was put, and carried.

Mr. BIDDER said he was very sorry to have to say many things unpleasant to gentlemen present. He had forwarded a circular to the shareholders, which stated that the whole control of the mine was practically in the hands of Mr. Henry Chapman, the London manager; that there was no managing committee: no audit or check upon the accounts, except at the meetings, at which it was almost impossible to apply any efficient examination. The only occasions on which the shareholders have, even nominally, any voice in the conduct of the business are the general meetings, which occur about three times a year. These opportunities, however, were of little practical value, for the following reasons:—The shareholders were scattered all over the kingdom, consequently the attendance was usually small. Mr. Chapman had, moreover, occasionally adopted a plan of collecting proxies by circular, which enabled him to defeat any proposals of which he might disapprove; he had also most unjustifiably assumed the right to establish a rule which effectively hinders any independent shareholder who might desire to do the same. He had instructed the secretary not to permit shareholders to inspect the books of the company containing the addresses of their fellow-shareholders, thus rendering co-operation almost impossible. This system of despotic management appeared to him to be most unsatisfactory in principle, and not less so in practice. For illustration, he might refer to a very important matter—the recent proposal to purchase the adjoining ground for 50000. It would be remembered that with the notice convening the meeting last October, the shareholders were startled by an announcement from Mr. Chapman that the

FEB. 6, 1875.

SUPPLEMENT TO THE MINING JOURNAL.

155

and the question would now arise whether coals could not be brought up and more economically used than firewood. They had been taken a little back by this announcement having been made in the last letter, as they had not been previously told the railway was near completion. Mr. Bland had introduced that subject in this way:—“The cost of firewood is this year lower than last, and as the railway is now open to Clunes we shall be able (in case of difficulty with the wood carters) to get a supply of coals from the sea board.”

There was no doubt in his (the Chairman's) mind that coals would be by far the cheaper. The board had written to Mr. Bland for the relative cost of the two articles. He then moved that the report and accounts be received and adopted.—Mr. SPENCER HERAPATH seconded the proposition.

A SHAREHOLDER drew attention to an item of 412. 4s. 3d. for income tax.

The CHAIRMAN said it was a disbursement that the Inland Revenue office compelled them to pay. As to the item for stores, Mr. Bland from time to time wrote to them to send out stamp-tubes, quicksilver, and different things of that kind; Mr. Bland returned a draft to meet the cost, which was charged against the joint companies.—Mr. BARDON was sorry the board had not put before the shareholders what he last year suggested should be done—a statement of accounts with the Clunes Company.

The CHAIRMAN said the fact was those accounts were audited out there on behalf of the joint companies. They all passed through Mr. Bland's hands, and were duly audited.

Mr. SPENCER HERAPATH said the other side had as much interest in their correctness as this side.—The SECRETARY said there were copies at the offices.

Mr. ALFRED CORBETT said to adopt that suggestion would multiply the accounts without any advantage.

Mr. WILD suggested that more capital should be put into the concern. The report of Mr. Lewis, which was a very good report, pointed to that. They had been working the surface levels and disregarding the future, and the great thing to avoid was a recurrence of that evil. It was evident they had only one shaft from which to extract and pump, and it was perfectly necessary that the shaft should be put down. Mr. Lewis says: “The north shaft is sunk deep enough for another level. About 42 ft. below No. 9 level, a lode 3 ft. wide was gone through in the shaft, which gave a return of 10 dwts. per ton. This must be considered a favourable indication of the value of the lodes at a greater depth.” That was very impertinent to make a suggestion. (No. 9.) He thought the shareholders should agree to a call, in order that the mine should be more vigorously developed.

The CHAIRMAN said that any shareholder, however small his interest, was as much entitled to make his remarks as the largest shareholder in the company. As given some seven or eight years ago—that they would not make a call unless with the sanction of two-thirds of the entire number; and he was afraid, if a meeting were called for the purpose, the board would be in a terrible minority. The board had no objection whatever to the suggestion.

A SHAREHOLDER asked how far the money in hand would go?

The CHAIRMAN said the principal of the money in hand was in the reserve fund, which he should never like the shareholders to reduce for capital purposes; the balance belonged to revenue. Two years since the board had recommended a dividend, but at the last moment were obliged to rescind that recommendation. That fund should not be trespassed upon without the full sanction of the shareholders.

Mr. WILD said that sinking these mines in other districts had been attended with immense success—take, for instance, the Comstock lode.

Mr. BEVAN thought the remarks of Mr. Wild, whose experience was not insignificant, and who was a director of the Cape Copper, were worthy their best attention. The report of Mr. Lewis should have some weight in considering the future property of the company. Here was a practical man pointing out the course that should be adopted if they wanted to prove the value of the mine. It seemed to him the directors should take the subject into consideration, for here was a specific suggestion by a professional man, pointing the way to the company to improve its position. Do not let them pester about with the small amount of capital in hand, but rather let them grasp the whole question boldly. If the present body of shareholders were faint-hearted it might be that another body could be formed to whom the mine could be sold at a good price. Mr. Lewis was no tyro in the matter—he gave them the advice that the indications were highly favourable for continuing the depth. He supported Mr. Wild's suggestion that the question be considered by the board.

Mr. ROBINSON presumed the board had authorised Mr. Bland to act upon Mr. Lewis's recommendations.

The CHAIRMAN said Mr. Bland was acting upon them.

Mr. ROBINSON asked upon whom the blame fell of the mismanagement of the mine?—The CHAIRMAN said they must go back some years, before, he believed, the existence of the present board.

Mr. ROBINSON said at the last meeting he opposed a vote of thanks to Mr. Bland because he laboured under the impression at the time that he had neglected the necessary prospecting measures, but he had seen a letter from Mr. Bland, which stated that he had repeatedly urged upon the board the necessity of taking these measures, but that his advice was not taken.

Mr. WILD asked if it would be too much to solicit the board to embody his suggestion in the motion adopting the report; that is, to ask the board to take into consideration the question of calls in order to prosecute the development of the mine with greater vigour in depth. He understood the south shaft had been abandoned?—The CHAIRMAN: Not abandoned; it had been suspended.

Mr. WILD thought it would occur to everyone that the south shaft should be commenced to be pushed down while there was no absolute use for it, in the meantime working the mine through the north shaft.

The CHAIRMAN said the board were quite ready to adopt that suggestion, for they had already written out to Mr. Bland to get all the necessary data before considering the question of call. In the letter referred to by Mr. Robinson Mr. Bland did not state that the board of the Port Phillip Company opposed the opening up of the mine in depth, but that it was the Chines Company who refused to accede to his proposition. In the last letter from Mr. Bland he refers to Mr. Lewis's report, and says that the only fault found with the mine management by Mr. Lewis was in not sinking the North shaft many years ago, at a time when this company had no control over it; and there can be no doubt that Mr. Lewis is quite right in saying “that the time to do this was when the great bulk of the quartz at the upper level was being raised at the south shaft.” The North shaft was then available exclusively for carrying on sinking operations; afterwards, when this shaft had to be used for hauling quartz, it became more difficult, and the difficulty was much increased by there being one engine for pumping and winding, both of which operations could not be carried on at the same time with one engine. I remedied this at the earliest opportunity by removing the No. 1 stamping-engine directly it was available, and erecting it at the north shaft for pumping purposes. This was completed in January, 1873; since that date the shaft has been sunk for two levels of 100 ft. each, working the night shift only, and we are now nearly ready to resume sinking for another level.

Mr. ROBINSON congratulated the board, and thanked them for having adopted the suggestion he made at the last meeting—that they should give up their remuneration of 300/-, and why not do the same for 1874?—The CHAIRMAN said he was in very great hopes that they would take their fees, because that would indicate the prosperity of the mine.

Mr. TENDRICK said it struck him the report could have been made more favourable if there had been time to refer to the announcement made by telegram that a richer part of the lodes had been struck. He strongly supported the remarks of Mr. Wild, who had had a large experience in mining. If there was a fair chance of getting a good return there would be no difficulty in obtaining the calls.

The CHAIRMAN said he had not referred to that telegram, because subsequent telegrams had not confirmed the richness of that particular lode. As to the own authority, but after obtained the necessary data from the other side to commence a meeting, and put before it the information from Mr. Bland, leaving it to the shareholders to make a call or not.

The CHAIRMAN, in reply to a Shareholder, stated that Mr. Bland's last letter gave the following particulars regarding the crushings obtained from the deep ground, and reported by telegram: “No. 9 Level: Western Lode; This has been driven upon 39 ft. north and 44 ft. south, the lode looking well, especially at the north end; the particulars of the yield from the several samples crushed are appended to this letter.” Then at the end of the letter Mr. Bland states that “the following are the returns from the western lode at the No. 9 or 790 ft. level since the date of my last letter.”

Quartz. Gold. Average.
Nov. 4 91 tons 32 ozs. 11 dwts. 7 dwts. 3 grs.

12 52 38 0 14 15

18 54 38 0 14 2

23 70 29 0 8 0

30 41 13 0 6 8

Mr. BEVAN objected to gratuitous services, and thought they were very little worth having. It was unreasonable to expect gentlemen to take the responsibility and trouble of managing the company's affairs and yet be unremunerated. He repudiated the idea of expecting gentlemen to give their services without remuneration—it was unworthy and unnecessary; whether they were prosperous or not the directors should be remunerated for their labours. He spoke as one who had been a shareholder from the commencement of the company.

The report and accounts were received and adopted.

Messrs. Cobbett, Thomson, and Maclennan were re-elected directors.

The CHAIRMAN proposed that a cordial vote of thanks be given to Mr. Bland, the resident director, for his able management of the company's affairs during the past year.—Mr. ROBINSON seconded the proposition, which was put, and carried unanimously.

A vote of thanks to the Chairman and directors closed the proceedings.

VICTORIA (LONDON) MINING COMPANY.

A general meeting of shareholders was held at the Terminus Hotel on Thursday.—Mr. H. Moon in the chair.

The report of the directors (which appeared in last week's Journal) was taken as read.

The CHAIRMAN said all the information the board had to communicate was contained in the report, with the exception that since it was issued another remittance of 200/- had come to hand. The directors recommended a dividend of 7d. upon the fully paid-up shares, and 6d. per share on those partly paid-up. The remittances they were desirous, and very properly so, of collecting a sufficient sum of money to pay for firewood, and to meet other expenses.

The remittances he had no doubt would be coming forward again in two or three months, and from what Mr. Bland had stated the South Clunes would continue to be a very remunerative mine. Mr. Bland, in one of his letters, says that he believes if the mining interest in Victoria was in a flourishing condition as it used to be, he had no doubt every share in South Clunes would be worth 50/-, instead of as now 10/-.

If that day did arrive, which there seemed every

reason would soon be the case, that would give the shareholders in the Victoria Company all the capital they had lost. On a previous occasion, as, doubtless, his friend Mr. Sutton would recollect, the shareholders had proposed that the company should be wound-up, which the board strenuously opposed, and he (the Chairman) believed the time was coming when it would be seen that their policy was the right one. He then moved that the report and accounts be received and adopted.—Mr. WINGROVE seconded the proposition.

The CHAIRMAN, in reply to a question, said the board had not taken fees for a dividend of 7d. per share on those with 16s. paid, both free of income tax.

Messrs. Moon and Maclennan were re-elected directors. Messrs. Sutton and Wingrove were re-elected auditors.

A vote of thanks was passed to Mr. Bland for his satisfactory management of the company's affairs.

A vote of thanks to the Chairman and directors concluded the proceedings.

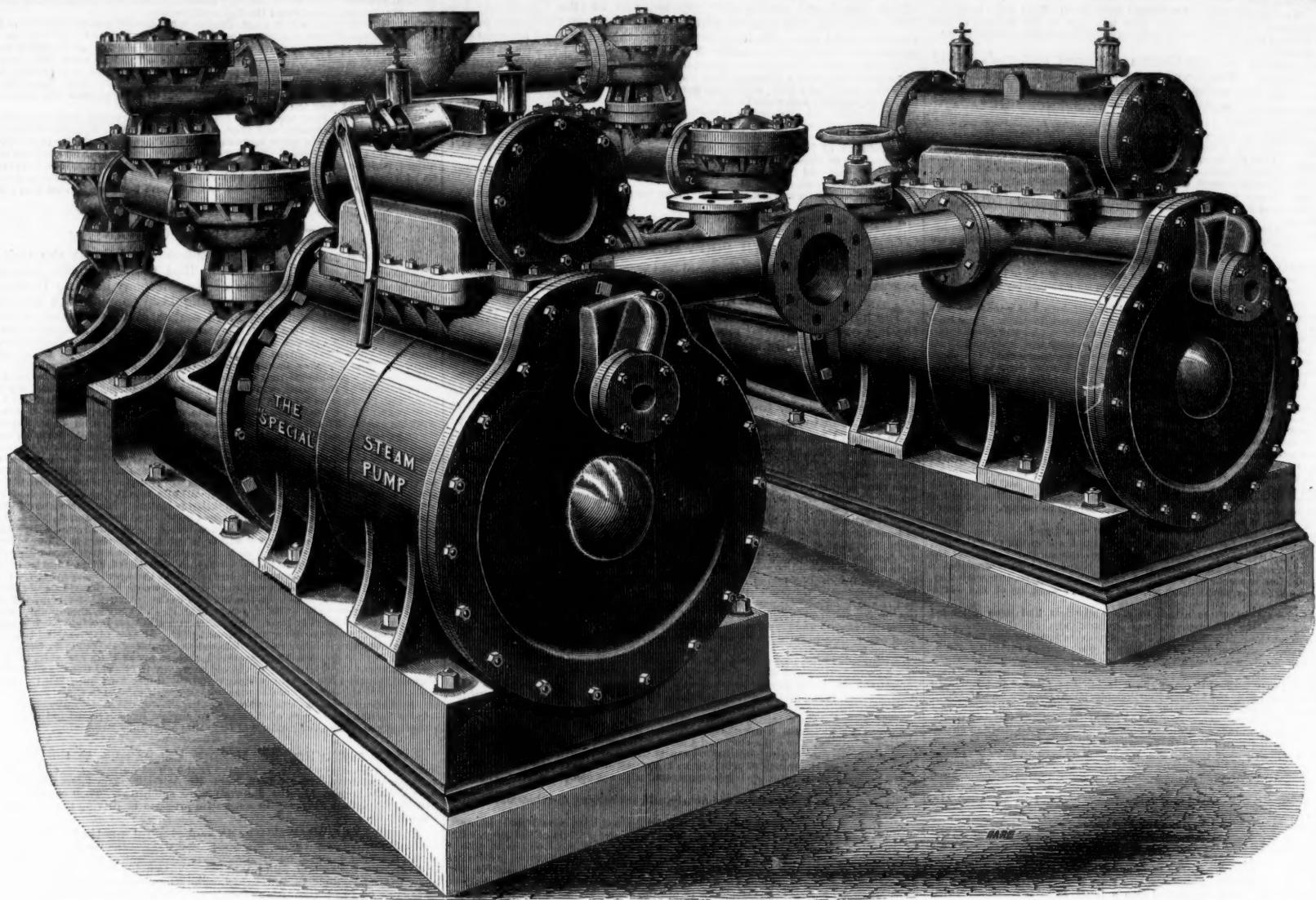
THE NORTH POOL MINING COMPANY.

The annual meeting of shareholders was held at the offices of the company, Great St. Helen's, on Wednesday, Dr. JOHN G. K. BURT, M.D., in the chair.

The notice convening the meeting was read, and the minutes of the last ordinary general meeting were confirmed.

The CHAIRMAN: In moving the adoption of the balance-sheet and the directors' and agents' reports, said I must refer to the favourable change that has taken place in the prospects of the company since the last meeting. At that time operations were proceeding in search of the lode, to-day they could announce that not only had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing, for the reason that no call had been made upon the shareholders such time as a favourable result could be announced, which having now taken place I strongly urge the proprietors to come forward and support them in the vein been intersected, but that the specimens upon the table had been taken from it during the past two or three days. The balance sheet that had been presented, of course, exhibited a financial condition not altogether flourishing,

A PAIR OF THE "SPECIAL" DIRECT-ACTING STEAM PUMPING ENGINES.



A PAIR OF THE "SPECIAL" DIRECT-ACTING STEAM PUMPING-ENGINES.

The accompanying illustration shows a pair of the "Special" Steam Pumping-Engines now in course of manufacture by Messrs. Tangye Brothers and Holman, of London, for Messrs. Lamb and Moore, of Newtown and Meadows Collieries, near Wigan, being duplicates of many others made by the firm. The steam-cylinders are 30 in. diameter, and the water-cylinder 10 in. diameter, by 4 ft. stroke. The engines will be capable of raising 40,000 gallons per hour 430 ft. high in one direct lift. It is of the first importance that all mine draining machinery shall be as simple and durable as it can be made, and that it shall be readily fixed and easily removed from one locality to another. This is particularly desirable for iron, copper, tin, lead, and other mines, which are of a fluctuating character, and

even for coal mines, where the operations are more permanent and extensive, every improved appliance for draining that effects an economy in plant and labour is manifestly to the advantage of all proprietary interests. The development of the system of draining mines by means of direct-acting steam-pumps has been carried out by Messrs. Tangye Brothers and Holman with characteristic energy and success, and during the last few months an important scientific advance has been achieved, analogous to the great improvement in Newcomen's engine effected by Watt when he applied his famous "condenser." It is well-known that in the Cornish pumping-engine two additional pumps are employed in the system of condensing—the air-pump and cold (injection) water-pump, except in such cases where the mine water pumped up to the surface is run into a cistern, and from thence direct into the exhaust steam receiver.

The engines illustrated will be fitted with a pair of Holman's patent self-acting exhaust steam condensers. These condensers are simply fitted in the suction-pipe of the double-action pump (with

which the workings are effectually drained) by placing the engine down in the mine. The steam for working the engine may be generated at the surface and taken down the shaft, and there effects its duty first by exerting its force on the piston in the usual way; and then, through the rapid condensation of the steam effected by the new condenser, so removes the load from the exhaust side of the piston as to contribute materially to the power required to raise the column of water in one continuous stream to the surface. This new feature will greatly commend the direct-acting system to the whole mining community; and since the great cost of long exhaust pipes is now avoided, and all inconvenience and injury caused by the escape of exhaust steam in underground workings is entirely prevented, there is hardly a doubt that the system inaugurated by Messrs. Tangye seven years ago, and which has so developed under their enterprising spirit, will be carried to an extent not hitherto contemplated. We hope to furnish a further report after these engines are set to work.

FOREIGN MINING AND METALLURGY.

The state of the French iron trade is far from being prosperous; at the same time, some small orders have slightly relieved the metallurgical horizon. The groups of the Centre and of Champagne are at present the most favoured; a certain number of orders have enabled their works to go on with a tolerable amount of activity. In Champagne a lot of 50 tons of grey refining pig has sold at 5*l.* 4*s.* per ton at the works. Some descriptions of coke-made iron have been dealt in at 8*l.* 16*s.* per ton. As regards plates it may be observed that they are in little request. In the Nord several forges have reduced the price of their iron to 8*l.* per ton for transactions with deliveries at a future date, and 8*l.* 8*s.* for current affairs. Heavy plates are quoted at 11*l.* per ton. At St. Dizier pig for re-casting has been disposed of with difficulty. No. 1 is quoted at 5*l.*, and No. 3 at 4*l.* 8*s.* per ton. White refining pig is sold at 3*l.* 1*s.* 8*d.* per ton in the case of transactions with deliveries at a future date, while disposable has brought 3*l.* 4*s.* per ton. The Paris iron trade has continued quiet. No. 2 rolled iron has brought 9*l.* 8*s.* per ton; special first-class iron 10*l.* 4*s.* per ton; and large puddled plates for boilers 14*l.* 8*s.* per ton.

The Paris copper market has continued weak, with a comparative absence of business. Upon the German copper markets business has ruled quiet, and orders have been restricted to the immediate requirements of consumption. The Rotterdam tin market has ruled quiet. Billiton has made 55*f.s.*, and Banca 57*f.s.* The average price of Banca at a recent public sale of the Dutch Society of Commerce was 56*f.s.* The Paris tin market has been slightly firmer. In Germany quotations for tin have been almost nominal. Lead has only realised comparatively nominal prices at Paris. The German lead market has ruled rather weak. Zinc has been pretty well supported at Paris. At Marseilles rolled Vieille-Montagne zinc has been quoted at 32*f.s.* per ton. The German zinc markets have continued quiet.

The condition of the Belgian coal trade is not very favourable just at present. Important stocks of industrial descriptions of coal are accumulating, in consequence of the generally inactive condition of Belgian industries. The demand for domestic consumption has not, also, attained the full importance desired. Some uneasiness begins to be displayed with reference to the season which is about to commence, and Belgian coalowners are following with marked attention the movements of the English markets, as well as those of the Ruhr basin and the North of France. Belgian coalowners are offering a stout resistance to any reduction in prices; but, on the other hand, the requirements of purchasers are neither pressing nor important. Official returns have just appeared illustrating the exports of Belgian coal into France in 1874 via the Zambre, the canal from Mons to Condé and the Erquelinnes, Hautmont, Quiesrain, Tournai, and Mouscroy Railways. The exports of last year show a falling off 342,900 tons. The exports of coke also declined 70,367 tons. The movement of Belgian coal into France by railway appears to increase at the expense of the corresponding movement by water. The use of metallic cables is stated to be increasing in Belgian coal mines.

A more or less decided fall has been noted in coal upon the French markets. The demand has fallen off, and coalowners are proposing more and more concessions to the French ironworks, which, unfortunately for themselves, do not require much coal just at present. The

sugarworks are on the point of closing their operations for the season, so that coalowners have little to hope for in that respect. The winter having again become mild, domestic consumption has also been rather reduced. The best qualities of house coal have been selling at Paris at 56*s.* 6*d.* per ton delivered. In the Nord all-coming coal for rolling mills has been selling at 12*s.* 10*d.* per ton; the corresponding price in the Nord has been 14*s.* 6*d.* per ton. Unwashed coke has been quoted at 1*l.* 1*s.* 8*d.* per ton in the Loire, and 1*l.* per ton in the Nord.

The last few days cannot be said to have brought with them any material improvement for Belgian metallurgical industry. The depression which has been noted for some time past is still continued, and nothing indicates at present the commencement of a revival in affairs. This revival will, however, come in time, all past experience having shown that to periods of depression times of industrial activity generally succeed with remarkable regularity. The great question which Belgian industrials have to consider is how long they will have to wait. This is a question which no one can answer with any certainty, although some persons profess confidence in the final result of the year which has just commenced. For some time purchases have been made very sparingly, but it is certain, nevertheless, that considerable requirements exist, and that they will make themselves felt in a future which cannot be very remote. Meanwhile, there are some rumours of enforced idleness; the province of Hainaut appears in this respect to be more severely tried than that of Liège. The industrial bourse of Liège is in such a flourishing condition from a pecuniary point of view that it has been resolved to reduce the subscriptions of the members as well as to suppress the entrance fee. When any improvement takes place in the tone of business this bourse may be expected to exert a favourable influence at its weekly meetings upon the industry of the province of Liège. A contract for Bessemer steel rails has just been secured by MM. Rossius, Pastor, and Co., of Strasburg. The amount of the contract thus secured was 33,130 tons, and MM. Rossius, Pastor, and Co. obtained the contract at 12*l.* 11*s.* per ton, delivered at Strasburg. This was a lower price than that at which some German firms and companies offered to undertake the contract. A contract for puddled steel rails was taken by MM. Falkenroth, Kocher, and Co., of Haspe, at 11*l.* 6*s.* per ton, delivered free at Wissembourg. M. Emile Durr has published an album containing a complete collection of all the various descriptions of iron produced at Seraing, Sclessin, Couillet, Marchienne, La Louvière, Clabecq, Acoz, &c. M. Durr proposes to distribute his work abroad—even in Japan and the United States—so as to increase, if possible, the business connection of the Belgian works. The Martin Steelworks Company has commenced legal proceedings against the Naval and Railway Forges and Steelworks Company for an alleged infringement of patent in regard to furnaces.

During the first eleven months of 1874 the exports of iron of various descriptions from France exhibited a reduction of 17 per cent. as compared with the corresponding period of 1873. The month of December happily counterbalanced to some extent this state of things, and slightly improved the general condition of affairs. The general result of the past year was that the whole of the exports of iron from France in that period were 11 per cent. below the corresponding total for 1873. It is to be hoped, in the interest of French ironmasters, that the salutary influence of December, 1874, will continue to make itself felt in 1875.

General Romanoffski, in a sitting of the Russian Technical Society

at St. Petersburg, recently gave some interesting information respecting the coal fields of the Sir Darya country. Coal abounds in the hills, but mostly occurs in nests containing comparatively small quantities of the valuable mineral. Of large coal fields but few have hitherto been discovered. The most extensive are those of Kokine Sai, near Chodshent, containing 19,000,000 pud at the lowest estimate. Next to them rank the Tatarinoff Mines, from which 300,000 pud of the best coal have been already taken, and the annual output of which averages 70,000 pud. Lead, salt, and other minerals have likewise been discovered, and promise a flourishing trade.

A NEW "RUSH" IN NEVADA.—The New York papers report that extraordinary excitement exists in California in consequence of the discovery of a mountain of silver ore in Nevada. It is believed that the ore will yield from \$600 to \$1,200 per ton. It is estimated that the ore is \$43,000,000 worth of ore in sight in one level of the mountain, and in California the estimate is still higher, ranging from \$50,000,000 to \$150,000,000. Everyone in California is in the flush of speculation, from millionaires to bootblacks, not even excepting the ladies, who in carriages visit the bankers' offices with exhausting regularity. Everybody is a bull or a bear. Never in the records of stock speculation in San Francisco has there been anything like the amount of business. One of the results of this is that every worthless mine has been brought forwards by stock gamblers, and the air is full of rumours of fabulous fortunes. One clothing firm is said to have received the resignations of all but one of their employees on New Year's day. They have all retired as capitalists. Every one who can has invested, the press cautioning the poorer speculators—clerks, teachers, &c.—not to be led away by the excitement.

PUDDLING.—Sir J. G. N. ALLEYNE, of Butterley Ironworks, Alfreton, has patented an invention which relates to puddling-furnaces of the rotating basin kind, and rabbles for such furnaces. The furnaces are provided with four regenerative chambers, two for gas and two for air, so that while the products of combustion pass from the furnace through a pair of the chambers, heating them, the gas and air passed to the furnace through another pair, becoming heated as to produce a flame when they meet at the furnace throat. The flame may enter at one throat, and issue by a throat on the opposite side, or the two throats may be on one side, so that the flue wheels round the furnace. The rabble used for basin furnaces, whether heated on the regenerative gas principle or otherwise, consist of iron bars or tubes bent to loop or to crank form, and made to revolve on a horizontal axis, so that their looped or cranked parts are caused to sweep through the molten metal in the basin. When tubes are used, water is made to circulate through them to keep them cool.

CHARCOAL FURNACES.—Mr. F. WIRTH (for Mr. E. LANGEN, of Cologne) has patented an invention for dispensing with the ordinary lower sliding cover of charcoal furnaces, and fastening the cooling tubes by means of bolts instead of bearers. These bearers are screwed into lateral bearers, which are supported by the pillars and brickwork of the furnace. Below these bearers there is placed a moveable plate, provided with two slits, suspended by means of lateral pieces on anti-friction rollers. The rollers bear on projecting ribs of the before-mentioned lateral bearers. The lateral pieces suspending the moveable plates are connected by rods to a small hydraulic engine, which gives movement to the lateral pieces and the plate, the rollers reducing the friction to a minimum.

HOLLOWAY'S PILLS.—Holloway's pills have been for years and still are renowned as a safe and salutary remedy for indigestion, liver complaints, and all manner of eruptions and skin diseases. Pains in the stomach after eating, eruptions of wind, pain in the back, aching of the right shoulder, weakness, languor, and tawny hue of the skin all disappear under the purifying powers of these admirable pills. They contain no ingredient which by possibility could hurt the most feeble frame. They effect a salutinous though momentous change throughout the system by thoroughly expelling all impurities and impounding on every organ its natural functions. Many testimonials of their efficacy can be produced, received from all parts of the world.

GOLD MEDAL.

The "COMICE AGRICOLE DE LILLE" have awarded to

HAYWARD TYLER & CO.,

OF LONDON,

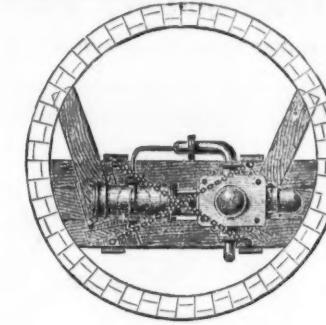
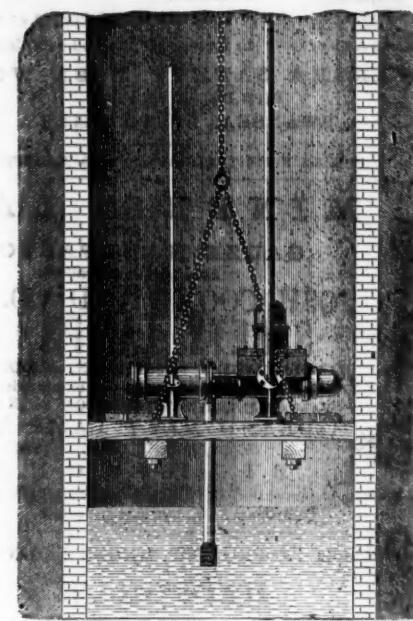
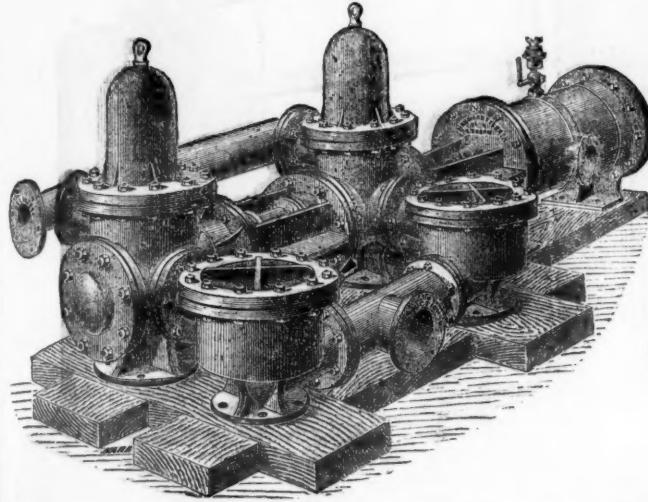
THE GOLD MEDAL

FOR THEIR PATENT

"UNIVERSAL" STEAM PUMP,

IN AN

OPEN COMPETITION,
HELD AUGUST, 1874.



Silver Medal: Royal Cornwall Polytechnic Society, 1872.

Medal for Progress: Vienna Exhibition, 1873.

SPECIALLY ADAPTED FOR MINING AND GENERAL PURPOSES.

84 AND 85, UPPER WHITECROSS STREET, LONDON.

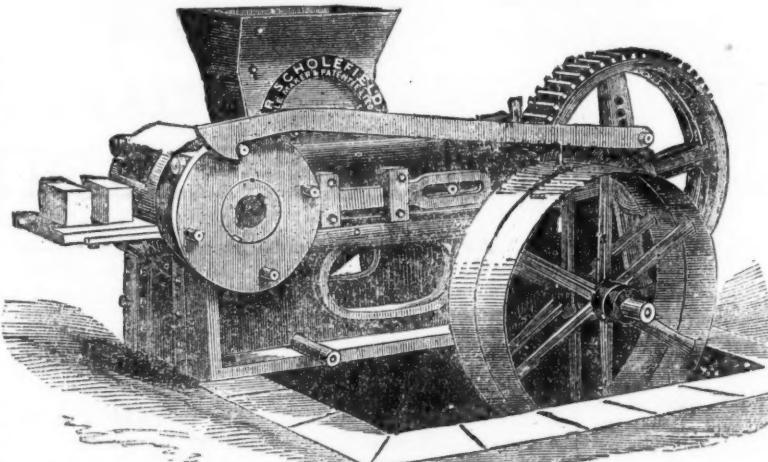
HYDRAULIC MINING—"GOLD RUN."

At the village of Gold Run I met Col. Ludlum, the superintendent of the Cedar Creek Mining Company, who drove me to Dutch Flat, and took me over the properties belonging to Cedar Creek. This is a large and very valuable holding, suffering somewhat from the fact that its property is divided into several sections, and is, therefore, more difficult to work than it would be if lying in a compact body. The property is, however, so extensive that it may be treated as two or three different mines. The company owns about 300 acres, and is adding to this area. In fact, owing to the great water supply owned by the company, it is able to make almost its own terms in regard to purchases from the holders of the small lots into which the gravel is divided, as these cannot work without systematic and well-laid-out tunnels, which would not pay to drive to wash small sections of gravel. Hydraulic mines can only be worked on a large scale, and the Cedar Creek, with its already large extent of property and its powerful water supply, has a practical monopoly of the Dutch Flat gravel region. This region is separated from the Gold Run region only by the Central Pacific Railway. This, however, is a wider and more marked division than would be supposed for the railway runs upon the original level of the ground. This has been, as I have already explained, washed away on either side to a depth of from 100 to 200 ft., and the railway in self-defence has been obliged to hold the land for some distance on either side of the track, as otherwise its safety would have been seriously imperilled. The centre of the gravel stream passes under the line almost at right angles. Cedar Creek owns some property upon the Gold Run side of the railway, and this will eventually be worked by a prolongation of the tunnel, which will open the Gold Run Mining Company's property. As, however, I have described the general features of the property already, I need not advert to it further. Their principal and at present most valuable holding is close to the town of Dutch Flat. Here they have recently added a number of small holdings to that which they previously held, and have now a consolidated property, including within it the blue lead, at an important point where two forks of the old river ran together. Here they were, at the time of my visit at work, for even in the dry season they have a sufficient head of water to work one of the largest jets. In the wet season their streams will provide 7000 in. of water for 10 hours a day, and operations were in course to enlarge the reservoirs, so as to provide a supply of 200 in. during the dry season. The great hydrant was at work with a tremendous pressure, the cisterns being over 400 feet above the point of issue: 1000 in. of water were rushing through a nozzle of 4 in. diameter, with a power and force which was astonishing. The water resembled a solid bar rather than a liquid, and the sensation upon putting one's finger against it was that of touching a rapidly moving column of shot rather than water. Even more curious was it to see the stream of water that rushed down from the face of the gravel; it seemed impossible that all this torrent could have emerged through the small orifice. One man sufficed to direct the jet, which was placed about 20 yards from the gravel upon which the water was playing. Tremendous was the force with which the water struck the gravel, with a roar that rendered speaking, or rather hearing, impossible. Great boulders of tons in weight were turned over and over, and rolled here and there at the pleasure of the operator; smaller rocks were sent flying in the air, and the tough clay was broken up, and the gravel mass seemed to melt down at the touch of the water. Upon a high bank close by were erected some strong shears with a crane, and with these the boulders too large to run down the slopes were lifted up and taken out of the way; this being done, of course, when the jet was turned in another direction. In mines, indeed, where water is short the boulders are generally taken out of the way by means of cranes during the daytime, and the jets are turned out at night to the light of huge log fires. In other places where the water is hired from water companies at so much per inch for the day of ten hours the boulders are removed in the early morning and late evening, before and after the "hydraulicing." The water and gravel rushed away down channels in the bed-rock to the mouth of the tunnel, by which it was to pass down to Bear River. Fortunately for the company, this tunnel is not a very long one, for the centre of the old bed is not very far distant from the ravine, consequently a tunnel of some 300 to 400 ft. was sufficient. I went down near to its mouth, and here the stream rushed out with great force, and then along some hundred yards of sluices down into the river bed. Looking at this rush of muddy water, carrying before it the rumbling blocks of quartz and the smaller gravel, one understands how large a proportion of the gold must be lost. Anything like what one may call a bit of gold would, of course, fall to the bottom, and be safely caught between the interstices of the blocks of wood which are laid on the bed of the mine. But the great proportion of the gold is of infinite fineness. If a piece of the gold leaf used by gilders were taken and broken up into an impalpable dust which the slightest breath would disperse through the air an idea may be formed of its fineness, and it will at once be seen that such an impalpable dust as this has but slight chance of finding a settlement in this stream, which is strong and rapid enough to sweep a child from his feet, and in which even a man would have to stand with care to ensure his footing.

I do not think that as yet this branch of "hydraulicing" has at all reached perfection, or that anything like as large a proportion of the gold is saved at present as will be recovered when more careful and scientific appliances are brought to bear upon it. This tunnel is called the Yankee Tunnel, and a branch of it will eventually be extended in the direction of the railway to a claim called the Deep Shaft, owned by the company. The intermediate claims are now being purchased by Cedar Creek, and as they all lie upon the course of the blue lead this will become one of the most valuable portions of the property. Knowing what immense progress have been made by drifting upon the blue lead, there can be no question that the Cedar Creek Company will, when their tunnels are sufficiently extended, and their reserves sufficiently enlarged to allow them to work all the year, have every prospect of a remarkable success. They have enough ground to last them for the best part of half a century. The original fault in the composition of Cedar

R. SCHOLEFIELD'S LATEST PATENT BRICK-MAKING MACHINE.

PATENTED 1873.



production, and the hands required to make 10,000 pressed bricks per day:—

| | |
|--|------------------------------|
| 2 men digging, each 4s. per day | £0 8 0 |
| 1 man grinding, 4s. 6d. per day | 0 4 6 |
| 1 boy taking off bricks from machine, and placing them in barrow ready for the kiln, 2s. per day | 0 2 0 |
| 1 boy greasing, 1s. 6d. per day | 0 1 6 |
| 1 engine-man, 5s. per day | 0 5 0 |
| 1 man wheeling bricks from machine to kiln, 4s. per day | 0 4 0 |
| Total cost of making 10,000 pressed bricks | £1 5 0, or 2s. 6d. per 1000. |

N.B.—Where the material can be used as it comes from the pit, the cost will be reduced in digging.

As the above Machinery is particularly adapted for the using up of shale, bind, &c., it will be to the advantage of all Colliery Owners to adopt the use of the said Brick-making Machinery.

THE MACHINES CAN BE SEEN IN OPERATION AT THE WORKS OF THE SOLE MAKER AND PATENTEE DAILY.

COLUMBA STREET, WOODHOUSE LANE, LEEDS.

Creek Company, as in Gold Run, and as in many other hydraulic undertakings, was that they started with insufficient working capital. Modern hydraulic mining, with its heavy tunnels and expensive apparatus, can only be successfully carried out with ample capital. Almost all these companies were started in ignorance of the extent and nature of the work which would be required to put them into paying condition, and most of them have paid for their error by hard times, no dividends, depreciated shares, and by finally borrowing in debentures the money to do the work which should have been done by the original working capital. Some of the mines have, like Gold Run and Cedar Creek, now turned the corner, and their way appears clear and bright before them; others will fail because they began in the wrong wrong way, their shareholders lost heart, and sufficient capital could not be raised. Those who in the future may venture upon hydraulic mining in California should profit by the errors of the past, and see that an ample working capital is provided, in order that the work may eventually be carried out so as to ensure success.—Correspondent of Standard.

QUICKSILVER MINING IN MEXICO.—We have received, through the kindness of the Mexican Consul in this city, the following items relative to quicksilver mining in Mexico from Antonio del Castillo, sub-director of the School of Mines in Mexico. Since the epoch of scarcity of quicksilver, preceding the discovery of Guadalcazar and New Almaden in 1840 and 1846 respectively, this article had not reached its present price of \$200 per quintal in Mexico. Suspension of many mills throughout the country is the natural consequence. New and old deposits of mercury are, however, being brought into notice. Near San Felipe, State of Guanajuato, various deposits are being worked, whose yield, however, cannot

supply the demand from the State. Near Guadalcazar and Charcos, State of San Luis Potosí, some veins are yielding quicksilver, though not enough for the same State. In Zacatecas, where there exists great demand for quicksilver, one vein has been discovered near Salinetas, though not indicating great richness. In Durango there are extensive deposits, which have been abandoned for upwards of two years, on account of the company's embarrassment and political difficulties. Some poor miners still work around these old workings, and obtain a considerable amount of quicksilver, which is used by the mines of Sinaloa. Rich specimens come daily from various sections of unexplored country, promising vast discoveries. At forty leagues from this city, in Guerrero, immense deposits have just been discovered bearing two minerals—one containing mercury, sulphur, and antimony, and the other oxide of antimony, mercury, and silicate, yielding 10 to 14 per cent. of quicksilver. Furnaces are needed, the present earthen vases being wholly insufficient. There is an old mine near Pregones, between Taxco and Zacualpan, 50 leagues from this capital, which since the time of the Spaniards has yielded rich cinnabar. Ore 4 in. wide yields 70 per cent. in clay containing 10 to 20 per cent. in a well-defined ledge connected with a silver-bearing ledge. By operating the 50 known deposits Mexico could produce 2,000,000 to 2,500,000 lbs. required for home consumption, and probably have some over for export.—Mining and Scientific Press, San Francisco.

PICKS.—Mr. M. DODDS, of Bedburn, has patented an invention which mainly consists in this:—The pick head is made of iron, somewhat shorter than the pick head intended to be, the deficient portions at each extremity (not pointed) being supplied by steel points welded on to the body of the pick head, constructed as above stated.

The Swansea Safety Fuse Company

Beg to intimate to the Proprietors and Agents of Mines, Collieries, Quarries, and others that they are MAKERS of all kinds of FUSE for BLASTING PURPOSES, and that they are enabled to OFFER important ADVANTAGES to DEALERS and CONSUMERS.

They solicit a trial order, or will be happy to forward terms and samples, if desired.

SWANSEA SAFETY FUSE WORKS,
PIPE HOUSE WHARF,
SWANSEA, SOUTH WALES.

PLEASE NOTE TRADE-MARK AND ADDRESS.

M I N E R S ' L A M P
AND
G A U Z E M A N U F A C T O R Y ,
Established Half-a-century.

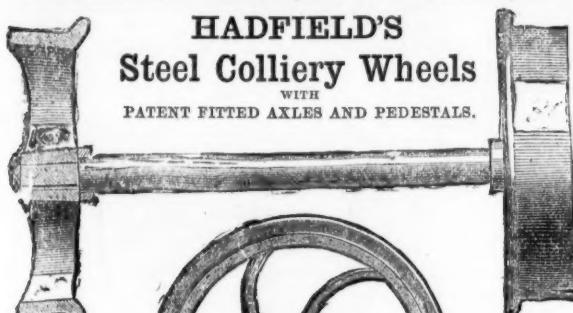
JOSH. COOKE AND CO. **T R A D E M A R K**
S A F E T Y L A M P S

MADE to DRAWING, DESCRIPTION, or MODEL. Illustrated Price Lists free, by post or otherwise.

VALUABLE TESTIMONIALS FROM EMINENT FIRMS.
M I D L A N D D A V Y L A M P W O R K S ,
20, &c., LOWER LAWLEY STREET,
B I R M I N G H A M .

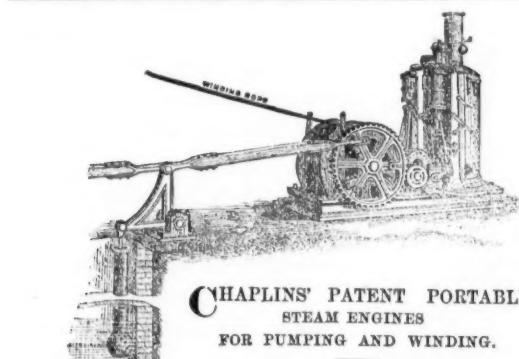
Specimens may be seen at the INTERNATIONAL EXHIBITION, Kensington Gore, CLASS XIV., DIVISION 3, No. 6905.

TO COLLIERY PROPRIETORS, MINING ENGINEERS, &c.



Also,
Hydraulic
Cylinders,
Pinions,
Ship-
propellers,
Railway
Crossings,
Skifes for
Ploughs, &c.

Hadfield's Steel Foundry Company,
MANUFACTURERS OF EVERY DESCRIPTION OF
C R U C I B L E C A S T S T E E L C A S T I N G S ,
ATTERCLIFFE, SHEFFIELD.



C H A P L I N ' S P A T E N T P O R T A B L E S T E A M E N G I N E S
FOR PUMPING AND WINDING.

These ENGINES are specially adapted for pits, quarries, &c. They are exceedingly simple in arrangement and strong. No foundation or chimney stalk being necessary, they can be erected or removed with very little trouble or expense, and are well adapted for home or foreign use.

Sizes, from 2 to 25-horse power.

STEAM CRANES, STEAM WINCHES, CONTRACTORS' LOCOMOTIVES, HOISTING ENGINES, PUMPING AND WINDING GEARING, &c.

ALEXANDER CHAPLIN AND CO.,
CRANSTON HILL ENGINE WORKS, GLASGOW.

INVESTMENTS IN MINES ARRANGED FOR CAPITALISTS.
Now ready, price 3s., post 3s. 3d., Fifth Edition; Fifteenth Thousand Copies, much improved, and enlarged to nearly 300 pages.

H O P T O N ' S C O N V E R S A T I O N S O N M I N E S, between Father and Son. The additions to the work are near 80 pages of useful information, principally questions and answers, with a view to assist applicants intending to pass an examination as mine managers, together with tables, rules of measurement, and other information on the moving and propelling power of ventilation, a subject which has caused so much controversy.

The following few testimonials, out of hundreds in Mr. Hopton's possession speak to the value of the work:

"The book cannot fail to be well received by all connected with collieries."—*Mining Journal*.

"Such a work, well understood by miners, would do more to prevent colliery accidents than an army of inspectors."—*Colliery Guardian*.

"Its contents are really valuable to the miners of this country."—*Miners Conference*.

"The work is replete on the subject of underground management."—M. BANKEs Colliery Proprietor.

"I have works priced £4 that do not contain the same information."—W. W. KENRICK, Colliery Viewer.

To be had on application at the MINING JOURNAL Office, 26, Fleet-street, London.

M I N I N G P R O S P E C T U S E S A N D A N N O U N C E M E N T S O F P U B L I C C O M P A N I E S should be inserted in the BARNSTAPLE TIMES, published every Tuesday, and in the DEVON POST, published every Saturday, as these papers circulate largely throughout Devon and Cornwall, where many thousands of investors reside. Legal and Public Companies' advertisements, 6d. a line each insertion; Trade and Auctions, 4d. a line; Wanteds, &c., 20 words, 1s.

Published by J. B. JONES, Boulport-street, Barnstaple, Devon to whom all orders, by post or telegraph should be sent.

BARROWS & STEWART, ENGINEERS, BANBURY,

MANUFACTURE

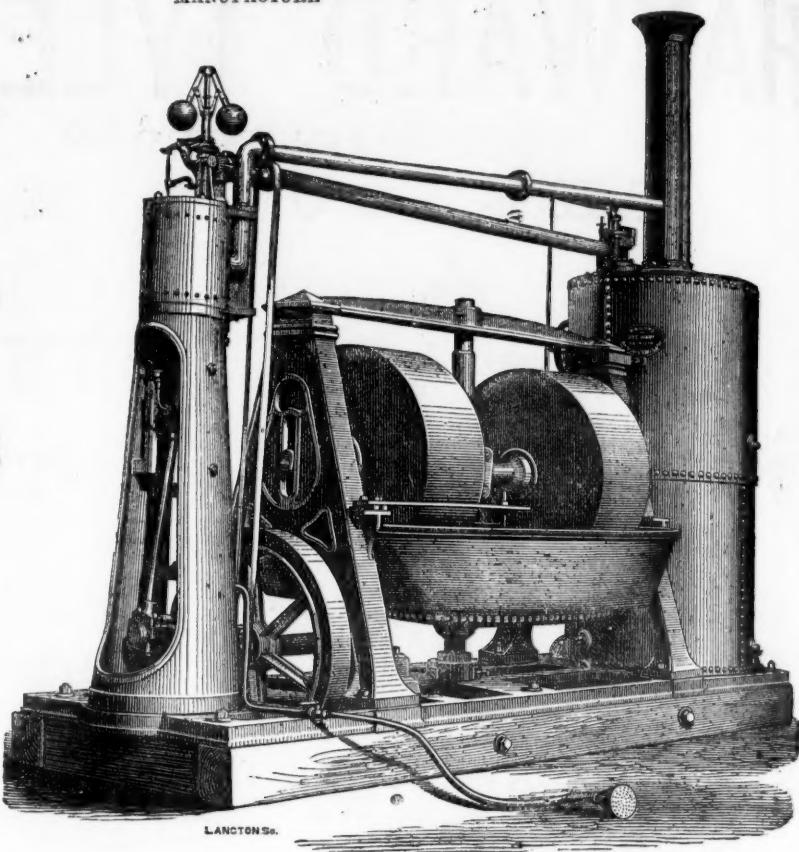
PORTABLE

Steam Engines

With Gear for
Winding,
Pumping, and Ore
Crushing.

ALSO,

C O M B I N E D M I L L S
and ENGINES,
with or without
BOILERS,
for Grinding
Cinders, Sand,
Mortar, &c.



HANDYSIDE'S SMITHS' HEARTHS AND FORGES

OF ALL SORTS AND SIZES.

For every kind of Smiths' Work, from the large fire with triple blast, for heavy forgings, to the smallest rivet hearth.

PRICES REDUCED TEN PER CENT., MAY 15.

WORKSHOP HEARTHS

(Nine shapes and sizes), with WATER TUYERES, adapted for Fan or Blower Blast.

PORTABLE FORGES

(Four sizes), each complete and self-contained, with a blower which—unlike a fan—is rotated at a slow speed only. These forges are useful either as permanent workshop tools or in colonies, steam-ship engine-rooms, and other places where no steam power or fixed fan is available. Entirely supersedes the use of bellows. Illustrated Price Lists post free on application.

ANDW. HANDYSIDE & CO., Limited,
32, WALBROOK, LONDON.—BRITANNIA IRONWORKS, DERBY.

The Business of A. H. & Co., as Bridge Builders, Ironfounders, Makers of Ornamental Ironwork, Malleable Iron Castings, &c., is fully described in their various Catalogues.
SOLE AGENTS IN SCOTLAND,—BENNETT & KENNEDY, 116, ST. VINCENT STREET, GLASGOW.

R E D U C T I O N O F P R I C E S .

1875.

C L A Y T O N A N D S H U T T L E W O R T H

Have much pleasure in announcing the following List of Prizes awarded them at the Cardiff Show:—

| | |
|--|-------------------------|
| "For the Best Portable Steam Engine" | THE FIRST PRIZE OF £40. |
| "For the Best Combined Portable Thrashing Machine" | THE FIRST PRIZE OF £40. |
| "For the Best Combined Portable Thrashing and Finishing Machine" | HIGH COMMENDATION. |
| "For the Best Straw and Hay Elevator" (Stacking Machine) | THE FIRST PRIZE OF £10. |
| "For the Best Straw Elevator" | THE PRIZE OF £5. |
| "For Patent Self-feeding Apparatus for Thrashing Machines" | SILVER MEDAL. |

CLAYTON AND SHUTTLEWORTH have received FIRST PRIZES AT EVERY TRIAL OF THE ROYAL AGRICULTURAL SOCIETY at which they have competed since 1849; and on three occasions in succession—namely, at Bury St. Edmunds, in 1867; at Oxford, in 1870; and at Cardiff, as above—they have been awarded all the First Prizes offered for Steam Engines.

VIENNA UNIVERSAL EXHIBITION, 1873.

THE SPECIAL DIPLOMA OF HONOUR for Agricultural Machinery.

Also, TWO MEDALS FOR PROGRESS—Group XIII., Portable and Traction Engines; Group II., Thrashing Machines.

MOSCOW GREAT EXHIBITION, 1872.—TWO GOLD MEDALS.

Revised price lists and catalogues free, by post, on application to—

C L A Y T O N A N D S H U T T L E W O R T H , L I N C O L N ;
78, L O M B A R D S T R E E T , L O N D O N ; A N D 35 A N D 37, T A R L E T O N S T R E E T , L I V E R P O O L .

ECONOMICAL STEAM POWER GUARANTEED.

THE GENERAL ENGINE & BOILER CO.

ESTIMATES ON APPLICATION AT 8, UNION COURT, OLD BROAD STREET, LONDON, E.C.

GEORGE ANGUS AND COMPANY,
ST. JOHN'S LEATHER AND INDIA-RUBBER WORKS,
NEWCASTLE-UPON-TYNE.

Every description of Leather, India-rubber, and Gutta-percha for Engineering and General Mechanical purposes.

THE "BURLEIGH" ROCK BORING COMPANY, LIMITED,
OFFICES,—100, KING STREET, MANCHESTER.

RICHARD MOTTRAM. SECRETARY.

This company is prepared to contract for the excavation of Rock, such as "SHAFT SINKING," "RAILWAY and other TUNNELLING," "DRIVING MINE LEVELS," "SLATE and other QUARRY WORK," &c. The company has also been appointed Agents for the Sale of

THE "BURLEIGH"
ROCK-DRILLING AND AIR-COMPRESSING MACHINERY,

ADAPTED FOR MINING, QUARRYING, TUNNELLING, SHAFT-SINKING, &c.

THE DRILLING MACHINES (IN FIVE SIZES) CAN BE MOUNTED ON ANY DESCRIPTION OF CARRIAGE OR SUPPORT, according to the nature of the work.

The Air-Compressors are adapted for Driving Rock Drills, Coal Cutting, Pumping, and Underground Machinery, where the Motive Power has to be conveyed long distances.
New Illustrated Catalogues, Price Lists, and Estimates, and every Information, post free, on application to the Secretary, or the Patentees and Sole Proprietors,—

THOMAS BROWN & CO.,

96, NEWGATE STREET, LONDON, E.C.,
OR

Wilson, McLay, and Co., Crown-buildings, Queen-street, E.C., London, and 87, St. Vincent-street, Glasgow.

ROBERT DAGLISH & CO.,

Boiler Makers, Engineers and Ironfounders, &c.,

ST. HELEN'S FOUNDRY, LANCASHIRE,

MANUFACTURERS OF

ROBERTSON'S PATENT

VALVELESS ENGINES, AIR-COMPRESSORS FOR COLLIERIES AND PUMPS,

With and without Condensing Apparatus

CHEMICAL PLANT OF EVERY DESCRIPTION.

ROLLING MILL ENGINES, GEARING, &c.,

GLASS MACHINERY.

MINING MACHINERY FOR COPPER, COAL, GOLD, AND SALT.

THE
PHOSPHOR BRONZE
COMPANY (LIMITED).



OFFICES:
139, CANNON STREET, E.C.
FOUNDRY:
115, BLACKFRIARS ROAD, S.E.

INGOTS, Nos. I and II, suitable for Pumps, Pinions, £130 per ton
Ornamental Castings, &c.
Nos. VI. and VII., suitable for Valves, Plungers, £145 per ton
Bushes and Bearings, Fans, &c.
Special Phosphor Bronze Bearing Metal £120 per ton
CASTINGS, Wire Ropes, Tuyeres, &c., of all descriptions
executed at the shortest notice.

Just published, Free Edition.

GUIDE TO HEALTH; or, ADVICE AND INSTRUCTIONS FOR
THE CURE OF NERVOUS DEBILITY.—A New Medical Work on the
Treatment of Local Debility, Consumption, Loss of Memory, Physical Depression,
Indigestion, and all diseases resulting from loss of nerve power. Illustrated with
several and testimonials. Sent free for two stamps.—Dr. SMITH will, for the benefit
of country patients, on receiving a description of their case, send a confidential
letter of advice.—Address, Dr. H. SMITH, 5 Burton-crescent, London, W.C.

ST. LAWRENCE ROPEWORKS, NEWCASTLE-ON-TYNE.

ESTABLISHED 1782.

THOMAS AND WILLIAM SMITH,

Manufacturers of all kinds of Iron, Steel, Copper, and Galvanised Wire Ropes, Hemp and Manilla Ropes, &c., Round and Flat Shaft Ropes, Crab Ropes, Guide Ropes, Hauling Ropes, and Galvanised Signal Strand, Ships' standing Rigging fitted complete, Patent Hemp and Manilla Hawser, Warps, Cordage, Spunyarn, &c., &c., Manila Yarn for Telegraph Cables, &c., Flat Hemp Ropes for Driving Bands, Steel Plough Ropes, Fencing Wire and Strand, Lightning Conductors, &c.

OFFICES: 1, QUEEN STREET, NEWCASTLE-ON-TYNE; DOCKYARD, NORTH SHIELDS;

1, CROSBY SQUARE, LONDON, E.C.

STORES: DOCKYARD, NORTH SHIELDS; QUAYSIDE, NEWCASTLE; NEW MARKET, SOUTH SHIELDS;
AND EAST INDIA DOCK, BLACKWALL.

VARLEY & YEADON, COLLIERY & BRICK-MAKING ENGINEERS,

Manufacturers of WINDING, HAULING, and PUMPING ENGINES, Boilers and Fittings, Steam Piping, Donkey Pumps, Lift Pumps, Perforated Clay and Mortar Mills, Brick Presses, Pug Mills, Round and Flat Rope, Pit-head Pulleys, Wrought-Iron Head Gear, ROOFS and GIRDERs, Kibbles, ONE, TWO, and THREE-DECK CAGES, COAL TIPPING and SCREENING APPARATUS, VENTILATING FANS, TUBBING, GIRDERs, PILLARS, POINT PLATES. Steam or other Cranes, Crabs and Windlasses, Machines for Cutting Stone, &c.

CROWN POINT FOUNDRY, LEEDS.

Estimates furnished on application.

Ore Crushers, with H.R.M.'s
New Patent Crushing Jaw.

EXTENSIVELY USED BY
MINE OWNERS.

Few Working Parts.
Small Wear and Tear.
Freedom from Breakage.
Simplicity of Construction.
Excellence of Sample.
Economy of Power.

ALSO,

ROAD METAL-MAKING
MACHINES,

WITH

H.R.M.'s New Patent
Cubing Jaw.

FOR
REDUCING THE MATERIAL
TO
ANY REQUIRED SIZE.

EXCLUSIVELY ADOPTED BY HER
MAJESTY'S GOVERNMENT.

M'TEAR AND CO.'S CIRCULAR
FELT ROOFING,

FOR
GREAT ECONOMY
AND
CLEAR WIDE SPACE.

For particulars, estimates,
and plans, address,—

M'TEAR & CO.,
ST. BENET CHAMBERS,
FENCHURCH STREET,
LONDON, E.C.;
4, PORTLAND STREET,
MANCHESTER;
OR
CORPORATION STREET,
BELFAST.

The above drawing shows the construction of this cheap and handsome roof, now much used for covering factories, stores, sheds, farm buildings, &c., the principal of which are double bow and string girders of best pine timber, sheathed with $\frac{1}{2}$ in. boards, supported on the girders by purlins running longitudinally, the whole being covered with patent waterproof roofing felt. These roofs so combine lightness with strength that they can be constructed up to 100 ft. span without centre supports, thus not only affording a clear wide space, but effecting a great saving both in the cost of roof and uprights.

They can be made with or without top-lights, ventilators, &c. Felt roofs of any description executed in accordance with plans. Prices for plain roofs from 30s. to 50s. per square, according to span, size, and situation.

Manufacturers of PATENT FELTED SHEATHING, for covering ships' bottoms under copper or zinc.

INDODOROUS FELT for lining damp walls and under floor cloths.

DRY HAIR FELT, for deadening sound and for covering steam pipes, thereby saving 20 per cent. in fuel by preventing the radiation of heat.

PATENT ASPHALTE ROOFING FELT, price 1d. per square foot.

Wholesale buyers and exporters allowed liberal discounts.

PATENT ROOFING VARNISH, in boxes from 3 gallons to any quantity required 8d. per gallon.



By a special method of preparation, this leather is made solid, perfectly close in texture, and impervious to water; it has, therefore, all the qualifications essential for pump buckets, and is the most durable material of which they can be made. It may be had of all dealers in leather, and of—

I. AND T. HEPBURN AND SONS,
ANNS AND CURRIERS, LEATHER MILLBAND AND HOSE PIPE
MANUFACTURERS,
LONG LANE, SOUTHWAARK, LONDON
Prize Medals, 1851, 1855, 1862, for
MILL BANDS, HOSE, AND LEATHER FOR MACHINERY PURPOSES.

THE GREAT ADVERTISING MEDIUM FOR WALES.
THE SOUTH WALES EVENING TELEGRAM
(DAILY), and
(WEEKLY), established 1857,
the largest and most widely circulated papers in Monmouthshire and South Wales.
CHIEF OFFICES—NEWPORT, MON.; and at CARDIFF.

The "Evening Telegram" is published daily, the first edition at Three P.M., the second edition at Five P.M. On Friday, the "Telegram" is combined with the "South Wales Weekly Gazette," and advertisements ordered for not less than six consecutive insertions will be inserted at an uniform charge in both papers.

P. O. O. and cheques payable to Henry Russell Evans, 14, Commercial-street, Newport, Monmouthshire.

THE IRON AND COAL TRADES' REVIEW:
ROYAL EXCHANGE, MIDDLESBOROUGH.
The IRON AND COAL TRADES' REVIEW is extensively circulated amongst the Iron Producers, Manufacturers, and Consumers, Cosplayers, &c., in all the iron and coal districts. It is, therefore, one of the leading organs for advertising every description of Iron Manufactures, Machinery, New Inventions, and all matters relating to the Iron, Coal, Hardware, Engineering, and Metal Trades in general.

Offices of the Review: Middlesborough-on-Tees (Royal Exchange); London, 21 and 22, Red Lion-court, Fleet-street; Newcastle-on-Tyne (50, Grey-street).

THE NEWCASTLE DAILY CHRONICLE
(ESTABLISHED 1764.)
THE DAILY CHRONICLE AND NORTHERN COUNTIES ADVERTISER
Offices, Westgate-road, Newcastle-upon-Tyne; 50, Howard street, North Shields; 196, High-street, Sunderland.

H. R. MARSDEN, LEEDS, Mining Improvements,
Revolving Picking Table

ENGINEER,

Immense Saving of Labour.

950 NOW IN USE.

AWARDED 45 GOLD AND SILVER MEDALS

By the PATENT MACHINE
HERE ILLUSTRATED

60 to 70 Tons of Ore

MAY BE

CRUSHED OR SEPARATE
PER DAY OF TEN HOURS.

EXTRACT FROM TESTIMONIALS:

"Although I have travelled hundreds of miles for the purpose of, and spent several days in, examining what are styled ORE CRUSHERS, you only embrace and combine the true principles of action and construction for the purpose designed."

CATALOGUES FREE on application to

H. R. MARSDEN

Patentee and Sole Maker,

L E E D S .

COAL-CUTTING MACHINERY.

W. and S. FIRTH undertake to CUT, economically, the hardest CANTEL, ANTHRACITE, SHALE, or ORDINARY COAL, ANY DEPTH, UP TO FIVE FEET.

Apply.—

16, YORK PLACE, LEEDS.

J. WOOD ASTON AND CO., STOURBRIDGE

(WORKS AND OFFICES ADJOINING CRADLEY STATION).

Manufacturers of

CRANE, INCLINE, AND PIT CHAINS,

Also CHAIN CABLES, ANCHORS, and RIGGING CHAINS, IRON and STEEL SHOVELS, SPADES and FORKS, ANVILS, VICES, SCYTHES, HAY and CHAFF KNIVES, PICKS, HAMMERS, NAILS, RAILWAY and MINING TOOLS, FRYING PANS, BOWLS, LADLES, &c., &c.

Crab Winches, Pulley and Snatch Blocks, Screw and Lifting Jacks, Ship Knees, Forgings, and Use Iron of all descriptions.

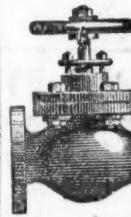
STOURBRIDGE FIRE BRICKS AND CLAY.

ARTESIAN BORINGS,

FOR WATER SUPPLY to TOWNS, LAND IRRIGATION, and MINERAL EXPLORATIONS, may be executed of any diameter from 6 in. to 36 in., and to any depth to 2000 ft.

Pistons & Air-pump Buckets fitted with Patent Elastic Metallic Packing

of which upwards of 7500 have been made to March, 1874.



MATHER AND PLATT,

MAKERS OF LARGE PUMPS AND PUMPING ENGINES.

Improved Valves and Taps for Water, Steam, Gas, &c.

PATENT STEAM EARTH-BORING MACHINE.

ENGINEERS and MACHINE MAKERS to CALICO PRINTERS, BLEACHERS, DYERS, and FINISHERS.

SALFORD IRONWORKS, MANCHESTER.

PRICES AND PARTICULARS ON APPLICATION.



ENGINEERS' TOOLS, LATHES, DRILLING MACHINES, LIFTING JACKS, HOISTING CRABS, HORIZONTAL STEAM ENGINES, &c., IN STOCK.

W. H. PEARSON, 50, ANN STREET, BIRMINGHAM.

Catalogues



on application.

**CHARLES PRICE AND CO.'S
PATENT RANGOON ENGINE OIL**

THIS OIL is suitable to every kind of Machinery; it is used almost exclusively in Her Majesty's Dockyards and Fleet, and by the War Office and East India Government; as well as by the Royal Mail Steam Packet Company, Pacific Steam Navigation Co., P. and O. Co., Cunard Co., and by most of the other important Royal Mail Steam Fleets in the kingdom. It is also extensively employed on the various railways, and by many of the leading engineering and manufacturing firms at home and abroad.

"Chemical Laboratory, 7, Printing House-square, Blackfriars, April, 1869." "I hereby certify that the Rangoon Engine Oil, manufactured by Messrs. Chas. Price and Co., is free from any material which produces corrosion of the metal work of machinery. It is calculated, indeed, to protect metallic surfaces from oxidation, and, from its peculiar character, is not liable to lead to spontaneous combustion of cotton waste or any similar material which might become impregnated with it, as is the case with Rape, Gallipoli, and Olive Oils. The lubricating power of this oil is equal to Sperm or Lard Oil."

T. W. KEATES, F.C.S., &c., Consulting Chemist to the Board of Works.

Extract from Mr. BAXTER's Speech in the House of Commons, May 31st, 1870:—"was obtained for from £40 to £45 per ton." "Chas. Price and Co.'s Rangoon Oil" "a vastly superior article" (speaking of Gallipoli Oil at £72 per ton). "Every parcel of the Oil sent from the Works bears the Trade Mark of the Firm, and as many spurious imitations of the Rangoon Engine Oil are sold purchasers are requested to observe that none is genuine which does not bear this mark."

Oil, Tallow, and Colour Merchants, Seed Crushers, Turpentine Distillers, &c.

London: CASTLE BAYNARD, UPPER THAMES STREET, & MILLWALL POPLAR—Works: ERITH, K.